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AIR UNIVERSITY PRESS

AU Press publishes books, monographs, and occasional papers, and provides publishing support to the US Air Force's professional journal—the *Air and Space Power Journal*, which is printed in English, Portuguese, and Spanish. Our publications program is designed primarily to help Air Force and other US war fighters, national leaders and policy makers, academicians, military historians, and other analysts understand and apply air and space power in peacetime and conflict. These publications are the result of unique research by military authors and civilian scholars.

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INVITATION TO AUTHORS

Air University Press's goal is to become the nation's premier nonprofit publisher of works on air and space power. Towards this end, we invite authors to submit manuscripts on topics related to

- airpower doctrine and strategy,
- the nature and future of airpower's role in warfare and peace,
- the history of airpower,
- case studies of the employment of airpower at all levels of conflict,
- aircraft and weapons systems,
- space applications, or
- airpower personalities, pioneers, theorists, leaders, and commanders.

AU Press publishes books, monographs, and occasional papers, and provides publishing support to the US Air Force's professional journal, the *Air and Space Power Journal*. Our publication program is designed to help war fighters, national leaders and policy makers, scholars, military historians, and other analysts understand how air and space power may be applied in peacetime and conflict.

The Air University Publication Review Board, consisting of key civilian and military faculty members and administrators, selects manuscripts for publication based on quality and validity of research, contribution to the understanding of airpower, and value to Air Force people and decision makers. Other works on significant issues relating to national security are occasionally accepted as budgetary considerations permit. As a government agency, the press is unable to remunerate authors or copyright its publications.

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If you are interested in submitting a manuscript, you should request a copy of the *Air University Style Guide* and the *Air University Press Author's Guide*. Both can be downloaded from the AU Press home page <http://aupress.maxwell.af.mil>. We request that a **floppy or zip disk**, preferably in Microsoft Word 7.0, accompany the manuscript.



Cover, *Aerospace Power Journal*, Portuguese edition, Air University Press, Fall 2002.

AIR UNIVERSITY PRESS BOOKS

These are major works on air and space power topics of broad interest and lasting importance throughout the Air Force and Department of Defense. They are listed here alphabetically by author; however, author and title indexes make finding any publication easy. For a list of books available electronically, go to our Web site at <http://aupress.maxwell.af.mil>.

Inside the Cold War: A Cold Warrior's Reflections

Chris Adams

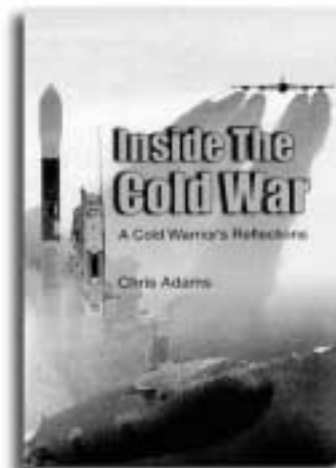
Maj Gen Chris Adams, USAF, retired, reflects on his experiences in the cold war, during which he served in both manned bombers and missile silos. He tells stories of famous and not-so-famous cold warriors, including some from the US Navy. Some stories are humorous; some stories are tragic. Having traveled extensively in Russia and some former Soviet Union states after retirement, General Adams tells us about his former adversaries, the Soviet cold warriors. In the process, he leaves no doubt about his respect for all who served so valiantly in the "Strategic Triad"—the Strategic Command, the intercontinental ballistic missile force, and the Submarine Navy.

1999. 195 pages. Public release.

B-72

ISBN 1-58566-068-X

\$14.00



Future War: An Assessment of Aerospace Campaigns in 2010

Jeffery R. Barnett

Colonel Barnett compares the next 15 years to the 15 years between World Wars I and II. He concludes that the changes between the two world wars may be dwarfed by those occurring within the next decade and a half. He envisions possible wars with niche competitors and peer competitors, giving theoretical scenarios of each. Colonel Barnett views communications technology and stealth technology as keys to victory in future war.

1996. 196 pages. Public release.

B-5

ISBN 1-58566-004-3

\$12.00



They Served Here: Thirty-Three Maxwell Men

Jeffrey C. Benton

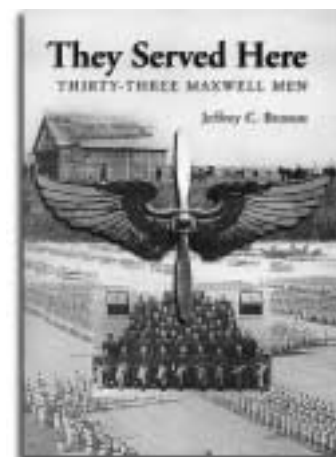
Colonel Benton provides a glimpse of the history of Maxwell Air Force Base by highlighting the careers of 33 airmen who served at the base at some point in their military careers. Some of the individuals portrayed were pioneers in the development of airpower and provided military leadership from World War II to the present. Others such as Glenn Miller, Clark Gable, and Bill Stribling were notable for their accomplishments in other fields. The stories told here highlight the critical, close interrelationships between the military and local society.

1999. 89 pages. Public release.

B-71

ISBN 1-58566-074-4

\$7.50





The Role of Airpower in the Iran-Iraq War

Ronald E. Bergquist

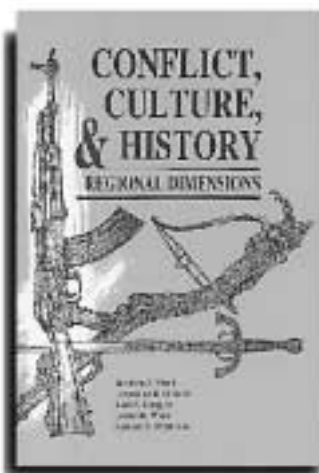
This book examines the air war between Iran and Iraq. Rather than simply describing what happened in the war, it attempts to discern why Iran and Iraq used their airpower as they did. It shows how the combatants value airpower, what aspects of airpower appear most important to Iranian and Iraqi national leaders, and how their values and needs led them to use airpower in ways quite apart from Western professional expectations. The results highlight considerations that affect the use of airpower by third world nations.

1988. 108 pages. Public release.

B-25

ISBN 1-58566-023-X

\$3.75



Conflict, Culture, and History: Regional Dimensions

Stephen J. Blank et al.

Five specialists examine the historical relationship of culture and conflict in various regional societies. The authors use Adda B. Bozeman's theories on conflict and culture as the basis for their analyses of the causes, nature, and conduct of war and conflict in the Soviet Union, the Middle East, Sinic Asia (China, Japan, and Vietnam), Latin America, and Africa. Drs. Blank, Lawrence Grinter, Karl P. Magyar, Lewis B. Ware, and Bynum E. Weathers conclude that non-Western cultures and societies do not reject war but look at violence and conflict as a normal and legitimate aspect of sociopolitical behavior.

1992. 370 pages. Public release.

B-45

ISBN 1-58566-043-4

\$17.00



Setting the Context: Suppression of Enemy Air Defenses and Joint War Fighting in an Uncertain World

James R. Brungess

Colonel Brungess proposes using joint suppression of enemy air defenses (JSEAD) to address the problem of reduced SEAD resources available to individual services. He contends that the demise of the Soviet Union presents the perfect transitional period for SEAD planners to create new approaches to countering the information-based integrated air defense system nets. He looks at the foundations and evolution of SEAD, identifies pertinent variables, and shows how they have changed. Colonel Brungess concludes that fiscal reality demands that the services forge joint SEAD tactics and doctrine.

1994. 244 pages. Public release.

B-54

ISBN 1-58566-051-5

\$15.00

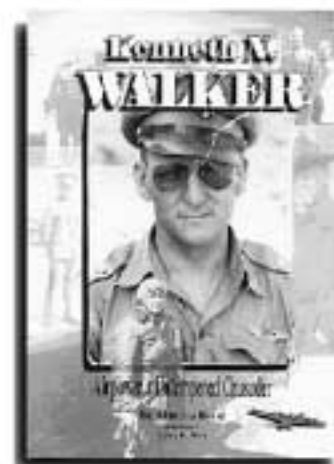
**Kenneth N. Walker:
Airpower's Untempered Crusader**

Martha Byrd

This biography of Brig Gen Kenneth N. Walker provides an in-depth look at the career of one of airpower's pioneer thinkers. Martha Byrd traces Walker's emergence from one of the early converts to airpower to his role as a key player in the formation of strategic bombardment doctrine. Her look at his performance in the Southwest Pacific theater during World War II gives us a deep insight into Walker's place in history as an innovator in the employment of airpower. Byrd not only highlights Walker's accomplishments but also provides a look at his often stormy relationships with fellow officers and in his personal life.

1997. 242 pages. Public release.

B-22 ISBN 1-58566-020-5 \$15.00



**Aerospace Power in the Twenty-First Century:
A Basic Primer**

Clayton K. S. Chun

In *Aerospace Power in the Twenty-First Century: A Basic Primer*, Dr. Clayton K. S. Chun exposes readers to relevant aerospace capabilities, theories, uses, elements of operational planning, and key issues. After introducing basic definitions and concepts, Dr. Chun uses case studies of both successful and unsuccessful applications of aerospace power to illustrate its functions and abilities. Designed primarily for readers new to the subject, *Aerospace Power in the Twenty-First Century* also serves as a useful source of information about the strengths and weaknesses of air and air space forces.

2001. 356 pages. Public release.

B-80 ISBN 1-58566-091-4 \$29.00



**Airhead Operations—Where AMC Delivers:
The Linchpin of Rapid Force Projection**

John L. Cirafici

Colonel Cirafici reviews airhead activity in contingencies during World War II and in Operations Urgent Fury, Just Cause, Desert Shield/Storm and Restore Hope. He examines the newly activated Air Mobility Command (AMC) structure within the theater and discusses the Somali civil war to illustrate how airhead's air mobility forces fit into the overall scheme of force deployment, reassembly, employment, and sustainment. Colonel Cirafici identifies some problems and needed improvements and recommends that AMC look beyond past successes and provide greater effort toward training and exercises to promote jointness at all operational levels.

1995. 109 pages. Public release.

B-60 ISBN 1-58566-057-4 \$6.50





**Architects of American Air Supremacy:
Gen Hap Arnold and
Dr. Theodore von Kármán**

Dik A. Daso

Major Daso tells the story of the founding of the scientific and technological base of today's US Air Force. He explains how Henry H. "Hap" Arnold and Theodore von Kármán ensured that theoretical science rather than empiricism grew to dominate Air Force research and development infrastructure. This story shows how personalities drive actions, institutions reflect personalities, and the interaction of these factors influenced, and continue to mold, the evolution of American air supremacy.

1997. 487 pages. Public release.

B-44

ISBN 1-58566-042-6

\$28.00



**Professional Military Education for Air Force
Officers: Comments and Criticisms**

Richard L. Davis
Frank P. Donnini

This book surveys the many evaluations made between 1946 and 1987 of the Air University's attempts to provide effective professional military education (PME) for US Air Force officers. Colonels Davis and Donnini discuss the purpose of PME from a USAF perspective and trace the evolution of Air Force PME and the curricula of the AU schools. The authors also offer observations about the education of officers, particularly with regard to commentary that has gradually evolved and may be styled a "doctrine" of PME.

1991. 136 pages. Public release.

B-41

ISBN 1-58566-039-6

\$9.00



The Air Force Role in Low-Intensity Conflict

David J. Dean

Colonel Dean examines the increasing importance of third world countries in global affairs. Their vital natural resources and geostrategic locations make them the object of intense competition between the superpowers and a ripe target for a new category of conflict. Because of the high probability of US involvement in third world conflicts, we must adapt our resources to acquire the flexibility demanded by low-intensity conflict.

1986. 143 pages. Public release.

B-16

ISBN 1-58566-014-0

\$4.00

Beyond the Paths of Heaven: The Emergence of Space Power Thought

Bruce M. DeBlois, editor

Major issues have plagued the US military space community for years. Foremost among these issues is the relationship between air and space. This work is a comprehensive examination of space power. Military space-lift vehicle requirements, space architectures, and ground support infrastructure are major issues. Graduate students at the then School of Advanced Airpower Studies researched and discussed a variety of these issues and their efforts are brought together here as a collection of master's degree research theses. The significance of this book lies in the synergism of the contributions. Although each of the articles reflects varying, well-documented, independent perspectives with both strengths and weaknesses, in total, the articles give a mature summary of the best available military thought regarding space power. The first three papers examine space organization, doctrine, and architecture. The rest are loosely grouped as predominantly sanctuary/survivability, space control, or high-ground perspectives.

1999. 572 pages. Public release.

B-70 **ISBN 1-58566-067-1** **\$40.00**



ANZUS in Revision: Changing Defense Features of Australia and New Zealand in the Mid-1980s

Frank P. Donnini

Colonel Donnini provides analysis and commentary on the demise of the ANZUS (Australia, New Zealand, and the United States) alliance and on shifts in Australian and New Zealand defense features. He addresses many questions and issues dealing with changing the political situation and the impact of those changes on defense and security conditions in the South and Southwest Pacific regions.

1991. 219 pages. Public release.

B-39 **ISBN 1-58566-037-X** **\$14.00**



Making Strategy: An Introduction to National Security Processes and Problems

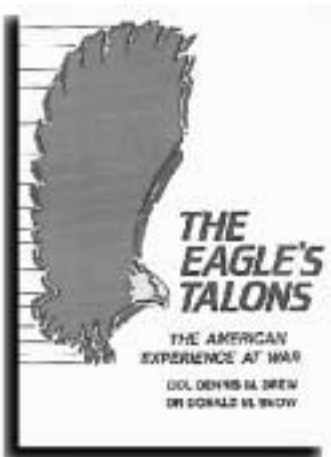
Dennis M. Drew
Donald M. Snow

The authors analyze the evolution of strategy and the process by which strategy is devised. This book is descriptive rather than prescriptive in nature. In contrast to authors who offer advice and counsel concerning how to make strategy decisions, Dr. Snow and Colonel Drew concentrate on what decisions military and political leaders must make. The authors examine the various military and political factors that influence those decisions.

1988. 229 pages. Public release.

B-23 **ISBN 1-58566-021-3** **\$10.00**





The Eagle's Talons: The American Experience at War

Dennis M. Drew
Donald M. Snow

This volume surveys the American experience in war with emphasis on the complex interactions between political and military affairs. Colonel Drew and Dr. Snow provide a key to understanding how and why the United States might employ its military power in the future.

1988. 445 pages. Public release.

B-27

ISBN 1-58566-025-6

\$16.00



Science and Technology: The Making of the Air Force Research Laboratory

Robert W. Duffner

Robert W. Duffner's *Science and Technology: The Making of the Air Force Research Laboratory* addresses the far-reaching implications of science and technology by recounting the events that led to the creation of a single Air Force laboratory. This engaging story of how the Air Force moved from 13 separate labs to one consolidated lab reflects that service's determination to reinvigorate its science and technology infrastructure and thereby strengthen the nation's defense for the twenty-first century. Part one considers why the Air Force decided to consolidate its far-flung science and technology enterprise into one lab, while part two relates how the service implemented the new lab. Dr. Duffner offers a unique perspective on a watershed event in the life of the United States Air Force.

2000. 328 pages. Public release.

B-77

ISBN 1-58566-085-X

\$27.00



The Development of Military Night Aviation to 1919

William Edward Fischer Jr.

Major Fischer examines the development of military night aviation from its origins through the First World War. Emphasis is on the evolution of night flying in those countries that fought on the Western Front, namely France, Germany, Great Britain, and the United States. While night flying occurred in other theaters, the most intense air effort was clearly in the west. There, belligerents pressed aviation technology and tactics to the limit. To illustrate the rapid development of night military aviation during the First World War, the author surveys the state of night flying prior to August 1914. The author concludes that the Western Front belligerents failed to appreciate and conserve the lessons of night flying learned during the First World War.

1998. 172 pages. Public release.

B-66

ISBN 1-58566-064-7

\$11.00

Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907-1960, Volume I

Robert Frank Futrell

In this first of a two-volume study, Dr. Futrell presents a chronological survey of the development of Air Force doctrine and thinking from the beginnings of powered flight to the onset of the space age. He outlines the struggle of early aviation enthusiasts to gain acceptance of the airplane as a weapon and win combat-arm status for the Army Air Service (later the Army Air Corps and Army Air Force). He surveys the development of airpower doctrine during the 1930s and World War II and outlines the emergence of the autonomous US Air Force in the postwar period. Futrell brings this first volume to a close with discussions of the changes in Air Force thinking and doctrine necessitated by the emergence of the intercontinental missile, the beginnings of space exploration and weapon systems, and the growing threat of limited conflicts resulting from the Communist challenge of wars of liberation.

1989. 683 pages. Public release.

B-31

ISBN 1-58566-029-9

\$31.00



Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1961-1984, Volume II

Robert Frank Futrell

In this volume, the author traces the new directions that Air Force strategy, policies, and thinking took during the Kennedy administration, the Vietnam War, and the post-Vietnam period. Futrell outlines how the Air Force struggled with President Kennedy's redefinition of national security policy and Robert S. McNamara's managerial style as secretary of defense. He describes how the Air Force argued that airpower should be used during the war in Southeast Asia. He chronicles the evolution of doctrine and organization regarding strategic, tactical, and airlift capabilities and the impact that the aerospace environment and technology had on Air Force thinking and doctrine.

1989. 803 pages. Public release.

B-32

ISBN 1-58566-030-2

\$37.00



The Air War in Southeast Asia: Case Studies of Selected Campaigns

Herman L. Gilster

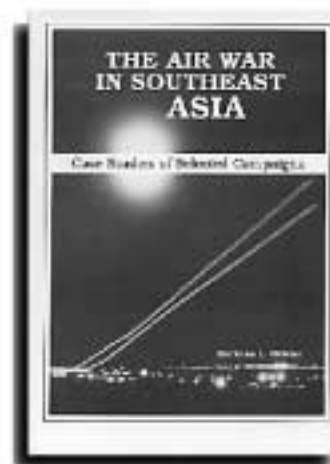
The author subjects five case studies of interdiction, close air support, and strategic bombardment to rigid analysis. Dr. Gilster shows the relationship between the strike effort and target damage of several air campaigns during the Vietnam War.

1993. 152 pages. Public release.

B-52

ISBN 1-58566-049-3

\$8.50





Sharing Success—Owning Failure: Preparing to Command in the Twenty-First Century Air Force

David L. Goldfein

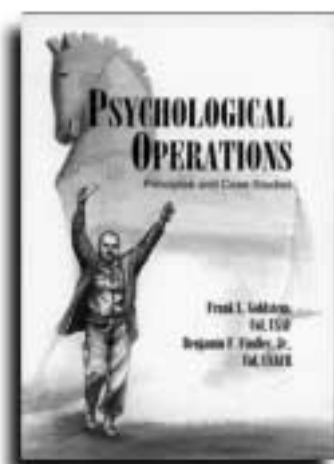
In Sharing Success—Owning Failure, Colonel Goldfein discusses several themes central to a successful command tour. He expresses ideas and puts forth questions to spark your imagination as you begin preparing for the task ahead of you—squadron commander. He shares stories from other squadron commanders that include both success and failure. Because, as Colonel Goldfein states, “it is from studying our failures that we learn, grow, and improve as officers and leaders.” In the Foreword, Maj Gen Charles D. Link, USAF, retired, says “this book is a must-read, not only for those selected to command a squadron but for all our young officers.”

2001. 130 pages. Public release.

B-81

ISBN 1-58566-098-1

\$8.50



Psychological Operations: Principles and Case Studies

Frank L. Goldstein and Benjamin F. Findley Jr.

This volume comprises 25 independent essays on military psychological operations. These essays are arranged in four sections: (1) Nature and Scope; (2) Policy and Planning; (3) Strategy, Tactics, and Operations; and (4) Case Studies. The authors make a strong case for the strengthening of psychological operations (PSYOP) in all aspects of US military operations. Among their recommendations is that PSYOP should be included in all phases of military training and professional military education.

1996. 376 pages. Public release.

B-18

ISBN 1-58566-016-7

\$21.00



The Quest: Haywood Hansell and American Strategic Bombing in World War II

Charles Griffith

This biography of Maj Gen Haywood S. Hansell Jr. provides an in-depth look at the life and career of one of airpower's pioneer thinkers. Hansell's professional life was devoted to the theory and practice of strategic airpower—the single most controversial military debate of the twentieth century. Hansell believed that wars could and should be won through precision bombing of military and industrial/commercial targets, a theory and practice that the US Army Air Forces abandoned during World War II because of the dictates of existing technology, the demands of combat, and the fact that the passions of war swept away moral concerns involving strategic bombing. Nevertheless, Hansell's main contribution to air doctrine was the concept that through selective targeting and an ability to place the bombs on those targets, airpower could win wars by crippling an enemy's ability to supply his forces and without causing wanton death and destruction.

1999. 238 pages. Public release.

B-73

ISBN 1-58566-069-8

\$16.00

Apollo's Warriors: United States Air Force Special Operations during the Cold War

Michael E. Haas

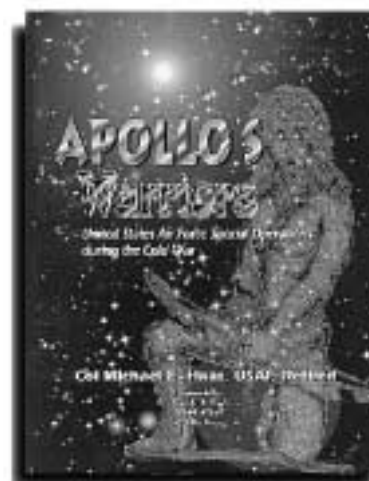
The author relates the exploits of the US Air Force's unconventional warriors who flew and fought for over a quarter of a century in a shadowy war that was out of the public eye. He uses interviews and recently declassified sources to describe the bravery and resourcefulness of these warriors in 26 chapters arranged in three sections: (1) Korea, (2) Covert War, and (3) the Second Indochina War. Adding to the attractiveness of this publication are over 200 color and black-and-white photographs depicting people and activities involved in this little-known aspect of the cold war.

1997. 369 pages. Public release.

B-37

ISBN 1-58566-035-3

\$28.00



American Airpower Comes of Age: General Henry H. "Hap" Arnold's World War II Diaries, Volume 1

John W. Huston

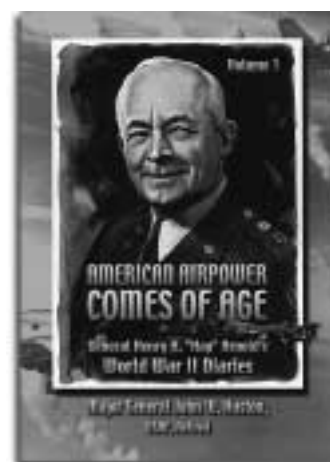
Gen Henry H. "Hap" Arnold, US Army Air Forces (AAF) Chief of Staff during World War II, maintained diaries for his several journeys to various meetings and conferences throughout the conflict. Volume 1 introduces Hap Arnold, the setting for five of his journeys, the diaries he kept, and evaluations of those journeys and their consequences. General Arnold's travels brought him into strategy meetings and personal conversations with virtually all leaders of Allied forces as well as many AAF troops around the world. He recorded his impressions, feelings, and expectations in his diaries. Maj Gen John W. Huston, USAF, retired, has captured the essence of Henry H. Hap Arnold—the man, the officer, the AAF chief, and his mission.

2002. 592 pages. Public release.

B-84

ISBN 1-58566-093-0

\$47.00



American Airpower Comes of Age: General Henry H. "Hap" Arnold's World War II Diaries, Volume 2

John W. Huston

This volume is a continuation of volume 1 and encompasses General Arnold's final seven journeys and the diaries he kept therein.

2002. 458 pages. Public release.

B-85

ISBN 1-58566-094-9

\$39.00





Listening Effectively

John A. Kline

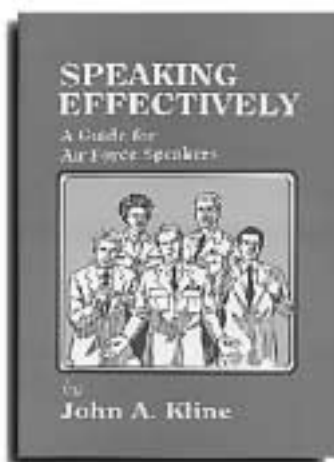
Dr. Kline introduces the reader to the need for better listening. He discusses six fallacies about listening: (1) Listening Is Not My Problem; (2) Listening and Hearing Are the Same; (3) Good Readers Are Good Listeners; (4) Smarter People Are Better Listeners; (5) Listening Improves with Age; and (6) Listening Skills Are Difficult to Learn. He describes the process of listening and the types of listening. Using the concepts of what we think, feel, and do about listening, Dr. Kline tells the reader how to listen more effectively.

1996. 70 pages. Public release.

B-10

ISBN 1-58566-009-4

\$4.25



Speaking Effectively: A Guide for Air Force Speakers

John A. Kline

Dr. Kline offers advice to help people develop the skills needed for speaking in public. The keys to being a good, confident speaker are preparation, organization, support, and delivery. He describes briefings, lectures, and speeches and discusses their differences. Dr. Kline provides examples and pointers for both the novice and the skilled speaker.

1989. 86 pages. Public release.

B-33

ISBN 1-58566-031-0

\$5.00



Mosquitoes to Wolves: The Evolution of the Airborne Forward Air Controller

Gary Robert Lester

Dr. Lester traces the evolution of US close air support, with special emphasis on Korea and Vietnam. He discusses the differing views of the Army, Navy, Marine Corps, and Air Force at some length and compares close air support in these two conflicts. The author notes the need for close air support in the Gulf War and explores the future of close air support. He punctuates this history and analysis with dramatic experiences of those who made it happen.

1997. 294 pages. Public release.

B-35

ISBN 1-58566-033-7

\$18.00

Challenge and Response: Anticipating US Military Security Concerns

Karl P. Magyar, editor

Maris McCrabb, Albert Mitchum, and Lewis B. Ware, associate editors

In this collection of essays, the contributors examine the implications of the formal dissolution of the Soviet Union and the Warsaw Pact on planning for future military threats. They attempt to identify the nature and source of the most likely future threats to global security. Part I contains a broad review of the major determinants of international change. Part II analyzes specific situations, the changing nature of warfare, and potential responses to emerging challenges.

1994. 444 pages. Public release.

B-56

ISBN 1-58566-053-1

\$27.00



Global Security Concerns: Anticipating the Twenty-First Century

Karl P. Magyar

Dr. Magyar has assembled a group of experts on military issues to ponder global security concerns for the twenty-first century. The writers of this study use the lessons of the past to identify what issues will propel states to rely on violent means instead of peaceful procedures to achieve their objectives. This work also offers a background on each topic, identifies areas where conflicts likely will occur, and measures the possibility of peaceful resolution of issues.

1996. 336 pages. Public release.

B-7

ISBN 1-58566-006-X

\$20.00



Prolonged Wars: A Post-Nuclear Challenge

Karl P. Magyar et al.

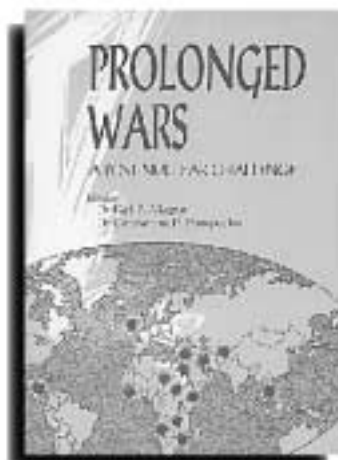
The authors examine the underlying impact of the cold war on protracted conflict in Africa and Asia. These area specialists examine the factors that produced prolonged conflict and what each side in them considered the cause(s) of these struggles. They analyze the reasons for "success" and "failure" in each of these regional conflicts.

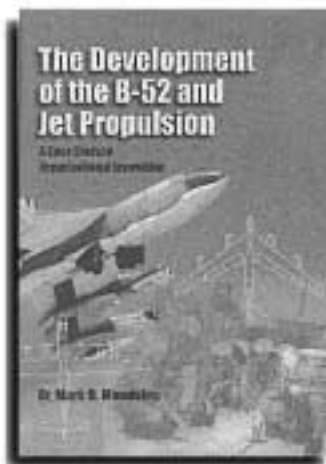
1994. 475 pages. Public release.

B-59

ISBN 1-58566-056-6

\$27.00





The Development of the B-52 and Jet Propulsion: A Case Study in Organizational Innovation

Mark D. Mandeles

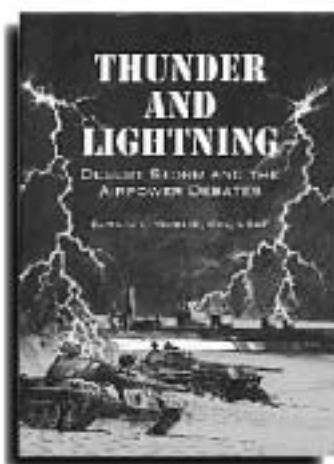
National security decision makers face an uncertain world where the accelerated growth of knowledge has changed the character of technological advance and destabilized long-standing relations within and among the military services. This book separates the principles that guide decision making from the proverbs through a case study of decision making in the early post-World War II period. This study examines the impact of organization on the invention and development of jet propulsion—in the form of the B-52—and illustrates both the organizational conditions conducive to developing new operational concepts and the organizational innovations necessary to implement new technology. This study also examines how the Air Force organized to learn and acquire new technology, how the Air Force conceived or identified problems, and how it organized to ensure management would respond to program failure or errors.

1998. 208 pages. Public release.

B-38

ISBN 1-58566-036-1

\$13.00



Thunder and Lightning: Desert Storm and the Airpower Debates

Edward C. Mann III

Colonel Mann undertakes a critical analysis of air and space warfare as planned and waged in Operation Desert Storm. He explores debates about airpower and its uses as they played themselves out before, during, and after the successes of the Gulf War. He compares the debates of the 1970s–1990s with those of the 1920s–1940s. Colonel Mann explores the underpinnings of successful warfare and observes that the warriors of the future must have a strong knowledge of principles and concepts of war to apply information, training, and technological resources with acumen needed to win future victories. *Thunder and Lightning* is a companion volume to Reynolds's *Heart of the Storm*.

1995. 240 pages. Public release.

B-2

ISBN 1-58566-001-9

\$14.00



Joint Training for Night Air Warfare

Brian W. McLean

This book examines the history of joint air operations and night air operations from World War II through Operation Desert Storm. Colonel McLean focuses on the need for increased training for joint operations at night. He describes a hypothetical contingency in Korea to illustrate some of the challenges of conducting joint night operations. He offers recommendations for a building-block approach to improve training in joint night air warfare capability.

1992. 122 pages. Public release.

B-46

ISBN 1-58566-044-2

\$7.50



Airmen and Air Theory: A Review of the Sources

Phillip S. Meilinger

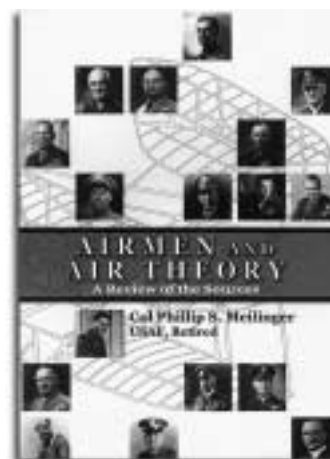
Originally published in 1995 as *American Airpower Biography: A Survey of the Field* and revised in 1997, *Airmen and Air Theory* updates the original material, reviewing new studies of prominent American airmen and adding sketches of five subjects: James V. Hartinger, Charles A. Horner, Lauris Norstad, Dale O. Smith, and George E. Stratemeyer. Colonel Meilinger has also included a substantial section, "The Historiography of Airpower Theory and Doctrine," originally published in *The Journal of Military History*. This new version will prove valuable to researchers in their quest for good sources on people who have shaped airpower and airpower theory.

2001. 176 pages. Public release.

B-13

ISBN 1-58566-101-5

\$15.00



The Paths of Heaven: The Evolution of Airpower Theory

Phillip S. Meilinger, editor

By giving airpower thinkers their due, *The Paths of Heaven* counterbalances the Air Force's tendency to emphasize operational concerns at the expense of theory. Most of the fifteen essays are contributed by current or former faculty of the then School of Advanced Airpower Studies at Maxwell Air Force Base, Alabama. Collectively, the authors trace the development of airpower theory from its origins with Giulio Douhet, through the formulation of airpower doctrine during the interwar years at the Air Corps Tactical School, to current efforts to codify a cogent theory of space power. In the words of retired chief of staff Gen Ronald R. Fogleman, "*The Paths of Heaven* is a valuable means of increasing our expertise in the employment of airpower."

1997. 680 pages. Public release.

B-29

ISBN 1-58566-027-2

\$39.00



The Air Campaign: John Warden and the Classical Airpower Theorists

David R. Mets

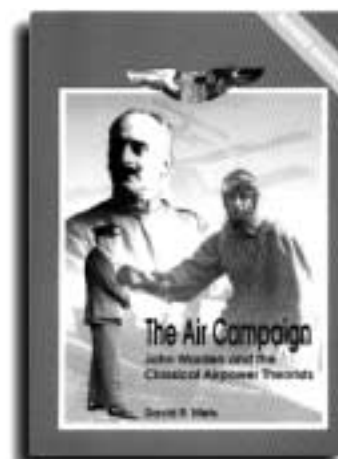
In light of the age-old belief of Confucius that no idea is new, Mets examines the role of Col John Warden in the Gulf War to determine if a revolution in military affairs had occurred. He relies on several twentieth-century antecedents to Warden, including Giulio Douhet, Hugh Trenchard, and Billy Mitchell to distill a pattern. Mets also addresses whether "the argument that antedated the Gulf War to the effect that such conflicts between states using conventional weapons and methods are a passing phenomenon." The concluding chapter provides an overview of Mets's discussion.

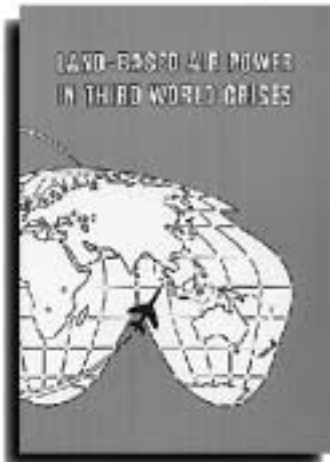
1999. Revised edition. 98 pages. Public release.

B-65

ISBN 1-58566-063-9

\$10.00





Land-Based Air Power in Third World Crises

David R. Mets

Dr. Mets examines the utility and limitations of land-based aircraft in third world crises over two decades. He offers several conclusions regarding the most effective use of airpower in crisis situations.

1986. 171 pages. Public release.

B-1

ISBN 1-58566-000-0

\$5.00



Airlift Doctrine

Charles E. Miller

Colonel Miller shows how the worldwide orientation of American foreign policy, the numerous threats to free-world interests, and the speed and complexity of modern warfare have combined with political and resource constraints to produce today's airlift doctrine and force structure.

1988. 447 pages. Public release.

B-21

ISBN 1-58566-019-1

\$17.00



Airpower and Ground Armies: Essays on the Evolution of Anglo-American Air Doctrine, 1940-1943

Daniel R. Mortensen, editor

These four independent essays provide a perspective on airpower doctrine development that varies somewhat from the usual view. Essay 1 describes the organization, doctrine, operational practices, and personality of the air forces in the western desert from 1940 to 1943. Essay 2 describes and analyzes the events in northwest Africa during Operation Torch while the third analyzes the machinations in policy development in Washington. Essay 4 analyzes the great tactical aviation exercise in northwest Europe, emphasizing the famous cooperation between George S. Patton and Otto P. Weyland.

1998. 224 pages. Public release.

B-50

ISBN 1-58566-047-7

\$13.00

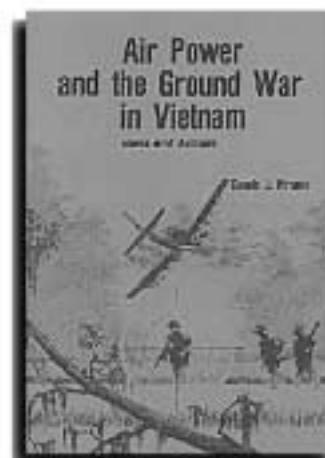
Air Power and the Ground War in Vietnam: Ideas and Actions

Donald J. Mrozek

Dr. Mrozek focuses on expectations concerning the impact of airpower on the ground war. He describes some of the actual effects but avoids treatment of some of the most dramatic air actions of the war, such as the bombing of Hanoi. He observes that the application of airpower is influenced by factors far beyond the battlefield.

1987. 204 pages. Public release.

B-17 **ISBN 1-58566-015-9** **\$9.00**



The US Air Force After Vietnam: Postwar Challenges and Potential for Responses

Donald J. Mrozek

This book probes various groups of Americans as they come to grips with the consequences of the Vietnam War. Dr. Mrozek examines several areas of concern facing the United States Air Force, and the other services in varying degrees, in the years after Vietnam.

1988. 133 pages. Public release.

B-26 **ISBN 1-58566-024-8** **\$6.50**



Strategy for Defeat: The Luftwaffe, 1933-1945

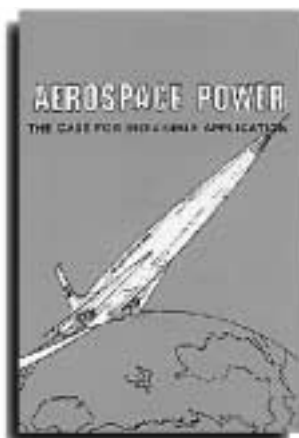
Williamson Murray

Dr. Murray's book provides a detailed analytical study of the development of the Luftwaffe. The author takes an in-depth look at the "easy war" (1939-40) and the turn toward Russia in Operation Barbarossa. Dr. Murray investigates the war of attrition from 1942 through early 1944 and the reasons for the final demise of the Luftwaffe from April through September 1944.

1983. 391 pages. Public release.

B-12 **ISBN 1-58566-010-8** **\$12.00**





Aerospace Power: The Case for Indivisible Application

Grover E. Myers

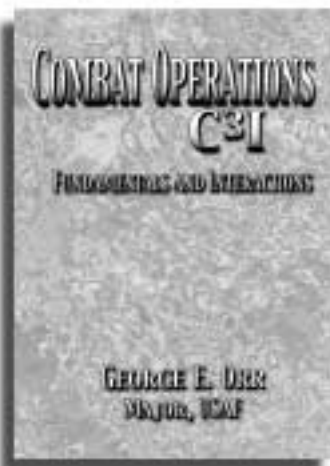
Major Myers offers a serious alternative to “aerospace folklore.” He proposes an indivisible airpower concept and argues that it would result in a far more flexible aerospace force structure—one that gets the most from our increasingly expensive and limited assets and applies the right force at the right place at the right time.

1986. 96 pages. Public release.

B-15

ISBN 1-58566-013-2

\$4.75



Combat Operations C³I: Fundamentals and Interactions

George E. Orr

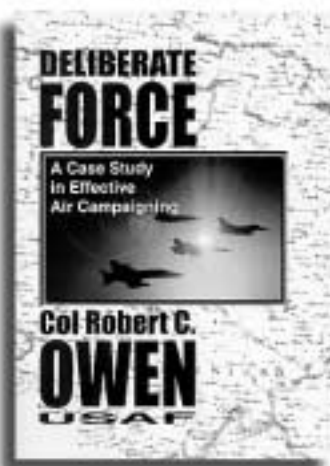
The author introduces basic definitions, functions, and processes of command, control, communications, and intelligence (C³I). He develops a conceptual model of the combat operations process based on the American approach to war. The study investigates the stochastic nature of combat operations and develops a guide to effective command. Major Orr concludes that a distributed C³I architecture designed to exploit the unpredictability of combat is best suited to the true nature of combat and the strengths of American fighting units. (Air University Press originally published this book in 1983 as Research Report No. AU-ARI-82-5.)

2001. 122 pages. Public release.

B-82

ISBN 1-58566-102-3

\$12.00



Deliberate Force: A Case Study in Effective Air Campaigning

Robert C. Owen, editor

Operation Deliberate Force, conducted between 30 August and 20 September 1995, was the North Atlantic Treaty Organization's air campaign to advance the cause of peace in the Balkans region. This study of that campaign examines how and with what considerations the planners and executors of Deliberate Force linked military operations with the goals they were charged to attain. In 16 essays, 11 contributors discuss the geopolitical, sociological, diplomatic, technological, and operational factors that shaped the characteristics and outcome of Deliberate Force and, in so doing, identify the implications of this air campaign for future conflicts.

1999. 560 pages. Public release.

B-74

ISBN 1-58566-076-0

\$37.00

The Role of US Nuclear Weapons in the Post-Cold War Era

Richard A. Paulsen

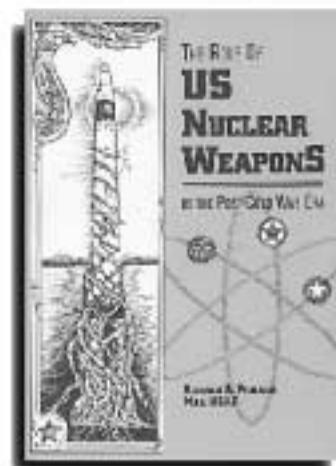
Major Paulsen examines the role of nuclear weapons in the defense posture of the US between the end of World War II and the breakup of the Union of Soviet Socialist Republics 50 years later. He gauges public opinion, reviews congressional testimony to determine the thinking of military leaders, and relies on his own military experience to assess new directions for deterrence in the post-cold war period. Major Paulsen surveys the continuing threat posed by nuclear weapons and recommends changes in US strategy for the post-cold war era.

1994. 208 pages. Public release.

B-58

ISBN 1-58566-055-8

\$23.00



The World Wide Military Command and Control System: Evolution and Effectiveness

David E. Pearson

In this comprehensive analysis of the World Wide Military Command and Control System (WWMCCS), the author takes three distinct themes—organization, technology, and ideology—and examines how each contributed to the development of WWMCCS. He explains how and why it developed the way it did, focusing on the system's computers and communications networks and using a number of illustrations. An interview with the chief technical officer of the system that replaced WWMCCS brings a contemporary flavor to the study.

2000. 414 pages. Public release.

B-76

ISBN 1-58566-078-7

\$37.00



Airpower Journal Index, 1987-1996

Michael J. Petersen and Pamela Lang, editors

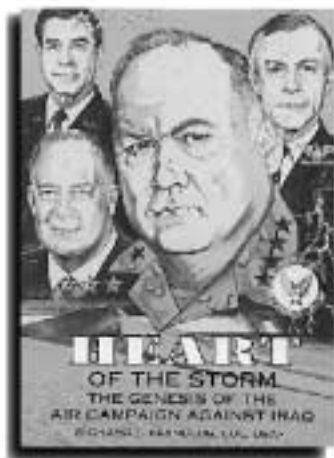
This reference book lists all articles and book reviews appearing in the *Airpower Journal* from 1987 to 1996 in author, title, and subject indexes.

1998. 208 pages. Public release.

B-49

No cost





Heart of the Storm: The Genesis of the Air Campaign against Iraq

Richard T. Reynolds

Colonel Reynolds presents a firsthand account of the struggle to design and implement the air campaign that proved instrumental in defeating Iraq in the Gulf War. Through documentary research and dialogue derived from interviews with key players such as Generals Dugan, Russ, Loh, and Horner, he traces the evolution of the air campaign plan known as Instant Thunder from its origins in the mind of Col John A. Warden III to the decision by General Schwarzkopf to employ airpower as his weapon of choice against Saddam Hussein. *Heart of the Storm* provides behind-the-scenes insights into how future decisions to use airpower will likely be made. It is a companion volume to Mann's *Thunder and Lightning*.

1995. 169 pages. Public release.

B-55

ISBN 1-58566-052-3

\$11.00



Introduction to the United States Air Force

B. Chance Saltzman and Thomas R. Searle, editors

Captain Saltzman and Dr. Searle provide information that introduces fascinating stories of the people, equipment, and operations of the Air Force. The book is organized in two parts and five appendices. The first part is organized chronologically and groups significant operations and personalities in critical periods during the development of the US Air Force. The second part covers aerospace craft by type (fighters, bombers, missiles, and so on) and shows the development of each over time. Following part 2 are appendices listing the senior leaders of the early air forces (before the creation of the US Air Force in 1947), the Air Force chiefs of staff, the chief master sergeants of the Air Force, fighter aces, and Medal of Honor winners.

2001. 190 pages. Public release.

B-79

ISBN 1-58566-092-2

\$24.00



Middle East Security Issues: In the Shadow of Weapons

Barry R. Schneider, editor

This study addresses questions that demand an answer if US national security policy is to be well informed. In "NBC and Missile Proliferation in the Middle East," Lawrence Scheinman summarizes the nuclear, biological, and chemical weapons capabilities and missile systems of Egypt, Iran, Iraq, Israel, Libya, and Syria. "Recent Developments in the Persian Gulf," by Anthony H. Cordesman, looks at both the conventional and weapons of mass destruction military balance between the states in the region. "Arab Perspectives on Middle Eastern Security," by Ibrahim A. Karawan, concludes that "the fact that the Middle East has not been among the success stories in curbing the spread of nuclear weapons is not surprising." Karawan believes that policy makers in the surrounding Arab and Muslim states cannot ignore the fact of Israeli nuclear weapons and explains the proliferation of chemical and biological weapons in such

states as a natural deterrence response. "Regional Security and Arms Control in the Middle East: The Nuclear Dimension," by Avner Cohen, explains the diametrically opposite approaches taken by the two sides in the Arms Control and Regional Security negotiations. "The Egyptian-Israeli Confrontation over the Nuclear Nonproliferation Treaty," by W. Andrew Terrill, contrasts Egypt's changing approach to the Israeli nuclear weapons possession.

1999. 146 pages. Public release.

B-75

ISBN 1-58566-077-0

\$12.00

Battlefield of the Future: Twenty-first Century Warfare Issues

Barry R. Schneider and Lawrence E. Grinter, editors

This is a book about strategy and war fighting in the midst of a revolution in military affairs as the world moves into the twenty-first century. Composed of 10 essays, the book looks at such subjects as debate over the future of airpower, the unique threat of biological warfare, the impact of the information revolution on warfare, and how the changes in military technology might require a rethinking of principles of warfare. The book also examines whether we are going through, at the turn of the century, a new revolution in military affairs caused by new military technologies, new organization for warfare, and new strategies for employing forces on future battlefields.

1998. 286 pages. Public release.

B-64

ISBN 1-58566-061-2

\$19.00



Air Warfare

William C. Sherman

Since this study was published initially in 1926, designers, engineers, pilots, and students of aviation have had an opportunity to discern its merits and to analyze its shortcomings. Still, in that historic year, with the public reeling from the outcome of the Scopes Monkey Trial, Charles Lindbergh's solo transcontinental flight, and the Billy Mitchell trial and verdict, William C. Sherman advanced a need for aerial navigation and cogently told us of the merits of flying. Coming at a time when flying was in its infancy, the book ushered in a new era in airpower historiography.

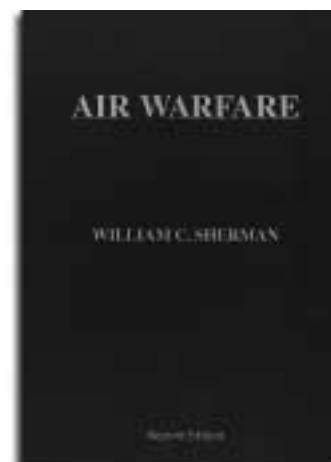
Sherman relied on an assortment of illustrations to buttress his contention that aerial navigation will play a large role in the future of air tactics. Readers may not be pleased with the paucity of citations and the absence of a bibliography, but Sherman makes it clear that *Air Warfare* was based on his notes while he was an "instructor at the Air Service Tactical School and at the Command and General Staff School." *Air Warfare* advances our understanding of aerial navigation so much so that Sherman can take credit for being the inspiration behind some of the technology currently used in military operations.

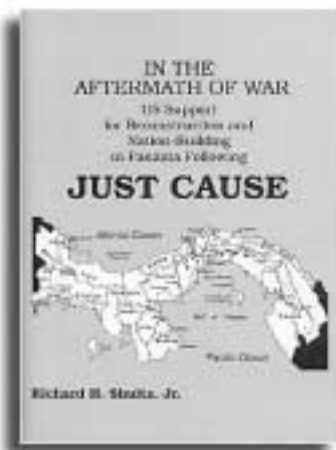
2002. 306 pages. Public release.

B-86

ISBN 1-58566-104-X

\$27.00





In the Aftermath of War: US Support for Reconstruction and Nation-Building in Panama Following Just Cause

Richard H. Shultz Jr.

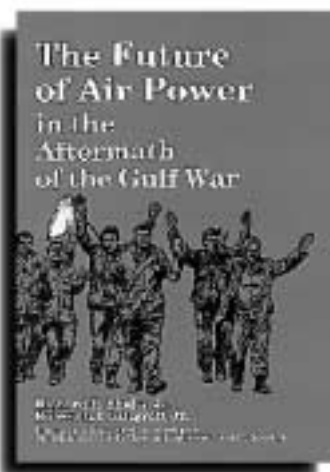
Dr. Shultz discusses the December 1989 invasion of Panama and assesses the effectiveness of American foreign policy implemented afterward. He focuses on reconstruction, nation-building, and democratization following Operation Just Cause. He reviews contemporary Panamanian politics and comments on what went wrong with our contingency planning. Dr Shultz examines the origins and future applications of the Military Support Group and concludes that future postconflict situations will require the Department of Defense to create an interagency mechanism that can respond in an effective way to both civilian and military concerns.

1993. 88 pages. Public release.

B-61

ISBN 1-58566-058-2

\$10.00



The Future of Air Power in the Aftermath of the Gulf War

Richard H. Shultz Jr. and Robert L. Pfaltzgraff Jr.

This collection of essays reflects the proceedings of a 1991 conference on "The United States Air Force: Aerospace Challenges and Missions in the 1990s," sponsored by the USAF and Tufts University. The 20 contributors comment on the pivotal role of air-power in the war with Iraq and address issues and choices facing the USAF, such as the factors that are reshaping strategies and missions, the future role and structure of airpower as an element of US power projection, and the aerospace industry's views on what the Air Force of the future will set as its acquisition priorities and strategies. The authors agree that aerospace forces will be an essential and formidable tool in US security policies into the next century. The contributors include academics, high-level military leaders, government officials, journalists, and top executives from aerospace and defense contractors.

1992. 386 pages. Public release.

B-48

ISBN 1-58566-046-9

\$23.00



Self-Protective Measures to Enhance Airlift Operations in Hostile Environments

John A. Skorupa

Colonel Skorupa examines strategy, doctrine, forces, threat, and technological issues relating to airlift operations. He blends military art with industrial science. Colonel Skorupa explains threats to airlift and how electronic warfare and other technological applications would counter such threats.

1989. 201 pages. Public release.

B-30

ISBN 1-58566-028-0

\$8.50

Beating International Terrorism: An Action Strategy for Preemption and Punishment

Stephen Sloan

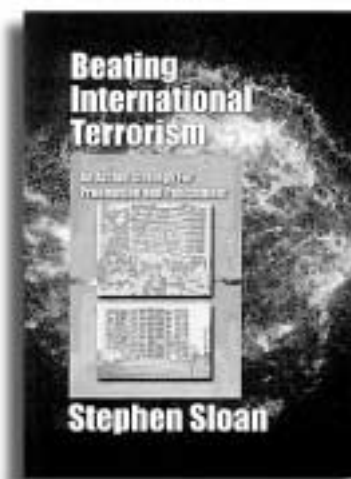
Dr. Sloan writes this book primarily for senior- and middle-level officials and officers who will be responsible for conducting war against terrorism. He examines several definitional problems, analyzes the factors involved in developing approaches to counter and preempt terrorism, and looks at the policy issues regarding the use of force.

2000. Revised edition. 110 pages. Public release.

B-3

ISBN 1-58566-079-5

\$8.00



Milestones in Strategic Arms Control, 1945–2000: United States Air Force Roles and Outcomes

James M. Smith and Gwendolyn Hall, editors

This compilation of 10 articles by frequently published arms-control experts captures the story of a young Air Force's initial (and limited) impact on arms-control negotiations and outcomes. It documents a growing awareness by the service that it was better to help craft the US position than merely to be a passive recipient. This book also highlights the lesson the Air Force belatedly learned in the early days of arms control: that it has to plan and budget for treaty implementation as aggressively as it works to protect its equities during treaty negotiations. When a treaty goes into effect, the Air Force needs to be ready to execute its responsibilities to ensure complete and timely treaty compliance. Though the Air Force did not seize a prominent role in the early days of post-war arms control, it made up for it quickly and forcefully as it gained a fuller appreciation of what was at stake.

2002. 324 pages. Public release.

B-87

ISBN 1-58566-110-4

\$28.00



Fighting Proliferation: New Concerns for the Nineties

Henry Sokolski, editor

This publication examines such issues as devising effective strategy against the proliferation of nuclear weapons, coping with the spread of space technology, and curbing Iran's and North Korea's strategic programs. Seventeen contributors address these challenges and their implications for US policy in the book's five divisions: part 1 explores how best to reform existing nonproliferation efforts; part 2 considers new high-leverage systems likely to threaten the United States in the near future; parts 3 and 4 focus on two new truculent proliferators—North Korea and Iran; and part 5 discusses the need to develop a long-term diplomatic, political, economic, and military strategy against proliferation. *Fighting Proliferation* places itself in the mainstream of opposition to proliferation and the search for practical, policy-relevant approaches to dealing with it.

1996. 396 pages. Public release.

B-19

ISBN 1-58566-017-5

\$23.00





Force and Accommodation in World Politics

Stanley E. Spangler

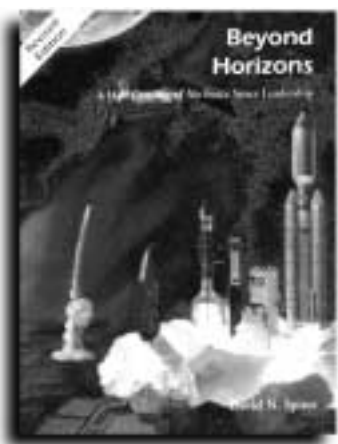
Dr. Spangler shows that conciliatory approaches or accommodative measures have frequently been avoided by the United States in its foreign relations and, if used, have too often been undervalued in comparison to military force. He develops a model or conceptual approach to foreign policy that he calls "positive diplomacy," which is to him a preferable method of integrating force and diplomacy in this very complicated and increasingly dangerous world.

1991. 380 pages. Public release.

B-42

ISBN 1-58566-040-X

\$15.00



Beyond Horizons: A Half Century of Air Force Space Leadership

David N. Spires; George W. Bradley III, senior editor;
Rick W. Sturdevant and Richard S. Eckert, associate editors

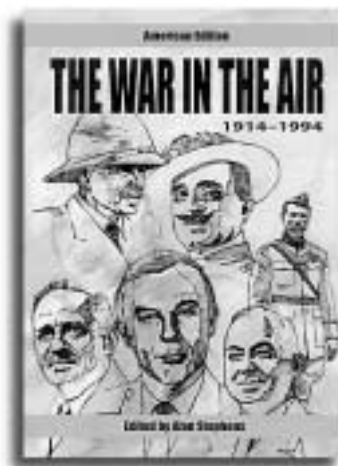
This book is a study of the Air Force's long involvement in initiating, developing, and applying the technology of space-based systems in support of the nation's security. It ranges from America's space and missile efforts prior to the launch of the Soviet sputniks in 1957, right up to the coming of age of military space employment in the Persian Gulf War of 1991. Finally, the study offers an assessment of the Air Force's leadership position in the ongoing debate over service roles and missions and its vision for the nation's space program entering the new century. This is a slightly revised edition of a book originally published by Air Force Space Command in 1997.

1998. 406 pages. Public release.

B-63

ISBN 1-58566-060-4

\$25.00



The War in the Air, 1914-1994

Alan Stephens, editor

This book contains the proceedings of a conference held by the Royal Australian Air Force (RAAF) in Canberra in 1994. Since its publication by the RAAF's Air Power Studies Centre in that year, the book has become a widely used reference at universities, military academies, and other educational institutions around the world. This American edition is a somewhat shortened version with minor editorial changes.

The contributors discuss the evolution of airpower from World War I to the near future. Essay subjects include World War I; doctrinal development in the interwar period; strategic bombing and support of surface forces in World War II; and airpower in the Korean War, Vietnam War, Arab-Israeli Wars, Falklands War, and Persian Gulf War; plus coverage of airpower in such peripheral conflicts as Operation El Dorado Canyon, the Malayan Emergency, and the Israeli raid on the Osirak nuclear reactor.

2000. 438 pages. Public release.

B-78

ISBN 1-58566-087-6

\$36.00

The Army and Its Air Corps: Army Policy toward Aviation, 1919–1941

James P. Tate

From the armistice in 1918 to the late 1930s, there was continuous controversy over the place of aviation in the military establishment. This book details how airpower visionaries, with varying degrees of tact, often risked charges of insubordination in preaching the gospel of airpower. As aviation technology advanced and as Army leaders were “educated” in the capabilities of aircraft, they showed genuine interest in the potential of airpower. The author contends that their decisions often favored the Air Corps and that the air arm received a lion’s share of the Army budget during a period of extreme austerity. Dr. Tate states that the Air Corps, far from being a stepchild, had become a princess by the late 1930s.

1998. 217 pages. Public release.

B-62

ISBN 1-58566-059-0

\$14.00



The Air Force Role in Developing International Outer Space Law

Delbert R. Terrill Jr.

Colonel Terrill provides an in-depth examination of the historical evolution of Air Force thinking and action on the development of international law as it applies to outer space. He traces the Air Force’s continual resistance to treaties and other conventions that would have defined the demarcation of the “boundary” between airspace and outer space. He shows that the Air Force position was grounded in the unwillingness to define outer space narrowly before the military had thoroughly researched and tested technological capabilities that could be employed in space. Terrill concludes by raising concerns about current issues that come into play on efforts to refine international law as it relates to outer space. These issues include technological advances and possible future international cooperation in space ventures.

1999. 155 pages. Public release.

B-69

ISBN 1-58566-066-3

\$12.00



Setup: What the Air Force Did in Vietnam and Why

Earl H. Tilford Jr.

American military professionals, especially the US Air Force, have had a difficult time understanding their role in this nation’s defeat in Vietnam. Dr. Tilford provides a critical self-analysis and questions the underlying assumptions of the Air Force’s strategy in Southeast Asia. He argues that we must understand what went wrong in Vietnam and why and not manipulate the record and paint failure as victory. He explains what led to the “setup,” which not only resulted in a failure for airpower but also contributed to the fall of South Vietnam, Laos, and Cambodia to Communist forces in 1975.

1991. 328 pages. Public release

B-40

ISBN 1-58566-038-8

\$12.00





Commanding an Air Force Squadron

Timothy T. Timmons

Colonel Timmons presents the views of many junior colonels and senior lieutenant colonels who have served as squadron commanders as he discusses the roles and responsibilities of this challenging assignment. Colonel Timmons's command and leadership principles, recommendations, and suggestions—though directed to the Air Force audience—apply to other US military services, officers of other nations, and civilian organizations and institutions.

1993. 148 pages. Public release.

B-9

ISBN 1-58566-008-6

\$10.00



The United States Strategic Bombing Surveys

This publication contains reprints of the Summary Reports—30 September 1945 (European War) and 1 July 1946 (Pacific War)—of the strategic bombing surveys conducted as World War II was coming to a close.

1987. 124 pages. Public release.

B-20

ISBN 1-58566-018-3

\$7.50



Air Power and Maneuver Warfare

Martin van Creveld, Kenneth S. Brower,
and Steven L. Canby

The authors identify and discuss the fundamental concepts and principles of maneuver warfare, compare and contrast it to attrition-style warfare, and trace its origins and history. They examine the role of airpower in enhancing maneuver during the early German campaigns of World War II, in Germany's 1941 Russian campaigns, and in the Soviet version of maneuver warfare in World War II. They analyze the importance of airpower in the maneuver warfare employed by Israel in the 1967 and 1973 wars and by the Coalition forces in the Gulf War. Dr. van Creveld forecasts what the role of airpower will be in warfare during the coming years. The book includes a response to the authors by air doctrine analysts at Air University.

1994. 284 pages. Public release.

B-53

ISBN 1-58566-050-7

\$17.00

Organizational Structure for Air National Guard Tactical Aircraft Maintenance

Rudolph Ventresca

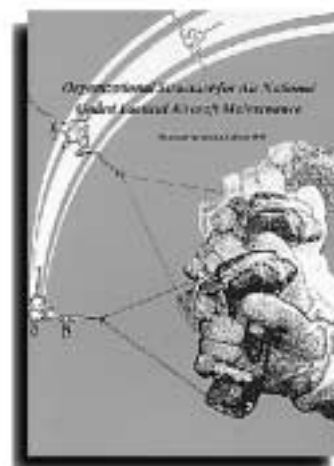
Colonel Ventresca analyzes and assesses the changes in the organizational structure of the active Air Force and the Air National Guard (ANG) fighter maintenance units from the time the ANG became a separate reserve component in 1946 to the present-day organization, which parallels the active Air Force. He provides insight into the ANG tactical air forces maintenance organization by chronicling the past, viewing the present, and projecting the reader into the future, taking into account those things that will likely affect the way ANG tactical aircraft maintenance is organized and will operate in the future.

1991. 116 pages. Public release.

B-43

ISBN 1-58566-041-8

\$7.00



From the Line in the Sand: Accounts of USAF Company Grade Officers in Support of Desert Shield/Desert Storm

Michael P. Vriesenga

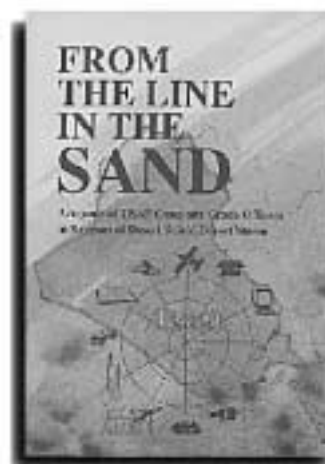
Captain Vriesenga presents a compilation of essays by 34 participants below the rank of major who contributed to the Gulf War. Their stories focus on such topics as deployment, organizational patterns of units, delegation of authority and responsibility, emotions and psychology of combat, the impact of combat losses, air-field construction, medical care, and aircraft preparations.

1994. 289 pages. Public release.

B-14

ISBN 1-58566-012-4

\$20.00



Low-Intensity Conflict in the Third World

Lewis B. Ware et al.

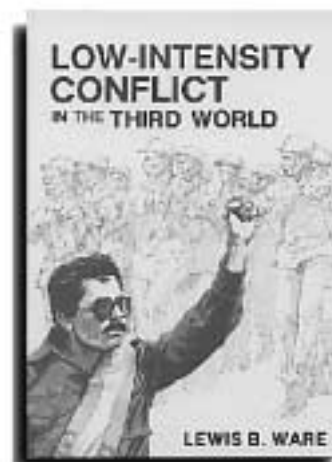
A common thread ties together the five case studies of this book: the persistence with which the bilateral relationship between the United States and the Soviet Union continues to dominate American foreign and regional policies. These essays analyze the low-intensity conflict environment in Central Asia, the Middle East, Southeast Asia, Latin America, and sub-Saharan Africa.

1988. 189 pages. Public release.

B-24

ISBN 1-58566-022-1

\$7.50





Implementing Joint Vision 2010: A Revolution in Military Affairs for Strategic Air Campaigns

Christopher G. Warner

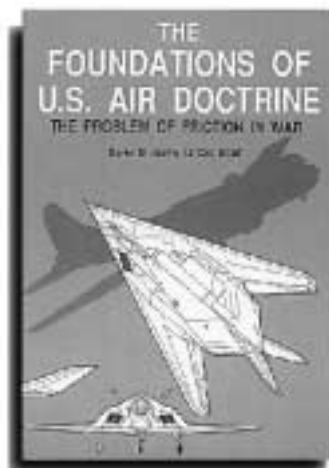
Implication of the CJCS's *Joint Vision 2010* and the United States Air Force's *Global Engagement* will lead to a strategic air campaign revolution in military affairs. A strategic air campaign can perform worldwide mobility to deter aggression or win battles and wars with application of combat power. These future air campaigns should achieve strategic objectives that prevent crisis escalation, enhance deterrence, or support other nonmilitary national objectives with timely delivery of logistical resources and people worldwide. The synthesis of today's airpower doctrine; tomorrow's dominant battle-space knowledge, *JV2010* operational-concepts development; rapid and effective command, control, communications, computers, and intelligence; high-penetration, low-observable aircraft employing precision weapons rapidly, disproportionately and against parallel target sets; and strategic airlift providing critical resources and supporting worldwide mobility will give the joint force commander and the US military significant long-range strategic airpower capabilities to achieve national security objectives. As we complete this synthesis, the United States will experience a strategic air campaign revolution in military affairs.

1999. 98 pages. Public release.

B-67

ISBN 1-58566-065-5

\$7.00



The Foundations of U.S. Air Doctrine: The Problem of Friction in War

Barry D. Watts

This study analyzes airpower doctrine from the viewpoint of Clausewitzian friction. The study concludes that American airpower doctrine has changed very little since the 1930s and that it is fundamentally flawed.

1984. 159 pages. Public release.

B-8

ISBN 1-58566-007-8

\$4.00



Archie, Flak, AAA, and SAM: A Short Operational History of Ground-Based Air Defense

Kenneth P. Werrell

The title refers to the name that airmen use and have used to describe ground fire against aircraft: Archie in World War I (from the British), flak in World War II and Korea (from the Germans), AAA throughout but especially in Vietnam (from the American abbreviation for anti-aircraft artillery), and most recently SAM (from the US abbreviation for surface-to-air missiles). This study concentrates on how these weapons developed and how they impacted both US and non-US air operations.

1988. 224 pages. Public release.

B-28

ISBN 1-58566-026-4

\$8.50

The Evolution of the Cruise Missile

Kenneth P. Werrell

The cruise missile possesses a rich conceptual and technological heritage. The author addresses this heritage and the importance of understanding it when we consider deployment and employment options. Without the perspective provided by this history, our perception of the cruise missile's purpose and use lacks depth and understanding.

1985. 303 pages. Public release.

B-6

ISBN 1-58566-005-1

\$7.00



Military Air Power: The CADRE Digest of Air Power Opinions and Thoughts

Charles M. Westenhoff

Colonel Westenhoff provides a collection of quotations about the utility and potential of airpower. The book is divided into the following sections: Airpower, War Technology, the Principles of War, and Command. This digest is organized to be a handy reference.

1990. 224 pages. Public release.

B-36

ISBN 1-58566-034-5

\$8.50



On Celestial Wings

Edgar D. Whitcomb

The first Army Air Corps navigational class at Miami University graduated in November 1940. In this book, Colonel Whitcomb follows these first celestial navigators through their World War II trials. Twenty-five personal stories and a series of photographs paint the stories of these men as they fought—combining the ancient art of navigating by the stars with the equipment on their B-17s, became prisoners of war, lived through the Bataan Death March, escaped from Japanese captors, survived primitive conditions in the Philippines, died for their country, or later served the US as navigators on the aircraft of presidents and dignitaries.

1996. 227 pages. Public release.

B-4

ISBN 1-58566-003-5

\$14.00





Biplanes and Bombsights: British Bombers in World War I

George K. Williams

Colonel Williams, USAF, retired, presents a comprehensive study of British bombing efforts in the Great War. He contends that the official version of costs and results underplays the costs while overplaying the results. Supported by postwar findings of both US and British evaluation teams, he argues that British bombing efforts were significantly less effective than heretofore believed. Colonel Williams also presents a strong argument that German air defenses caused considerably less damage to British forces than pilot error, malfunctioning aircraft, and bad weather. That we believed otherwise supports the notion that British bombing raids had forced Germany to transfer significant air assets to defend against them. Williams, however, found no evidence that any such transfer occurred. Actual results, Colonel Williams argues, stand in strong contrast to claimed results.

1999. 330 pages. Public release.

B-68

ISBN 1-58566-073-6

\$25.00



Rise of the Fighter Generals: The Problem of Air Force Leadership (1945-1982)

Mike Worden

Colonel Worden relies on oral histories, personal interviews, military and social histories, quantitative data, and sociological research to show how fighter generals rose to domination in the Air Force. From its inception through the 1960s, the Air Force was dominated by bomber pilots. Embracing an absolutist perspective, bomber pilots struggled to maintain their dominance. In the 1960s, however, they saw their positions of leadership slowly yielding to the experience, broader education, and pragmatism of fighter pilots. This study terminates in 1982 when the leadership changes with the selection of a string of generals with fighter backgrounds as Air Force chiefs of staff.

1998. 291 pages. Public release.

B-51

ISBN 1-58566-048-5

\$18.00

These occasional monographs seek to promote understanding of the theory and application of air and space power. These studies are sponsored by the Airpower Research Institute of Air University's College of Aerospace Doctrine, Research and Education (CADRE). Papers in the current series are available electronically at the Air University Research Web site <http://research.maxwell.af.mil> and the AU Press Web site <http://aupress.maxwell.af.mil>. (NOTE: *P-numbers listed here do not correspond to P-series numbers assigned by CADRE.* Be sure you order using the reference numbers shown below.)

Paradigm Lost: Rethinking Theater Airlift to Support the Army After Next

David W. Allvin

Colonel Allvin analyzes the theater airlift implications for the United States Army's vision, Army After Next (AAN)—now called the Army Vision: The Transformation of the Army, which is a continuum of the AAN—for land warfare in the twenty-first century. He identifies theater airlift capabilities critical to the AAN concept and examines emerging systems that seem likely to furnish those capabilities. He argues that improvements in cargo-handling, situational awareness, and defensive systems—as well as the ability to operate in austere conditions—constitute the most crucial future requirements for theater airlift. Colonel Allvin concludes that the most promising emerging systems for achieving required theater airlift capabilities include the tilt-wing concept, autonomous cargo-handling systems, and a standoff capability for examining the suitability of opportune landing sites.

2000. 110 pages. Public release.

P-14 ISBN 1-58566-084-1 \$8.50

Airpower against an Army: Challenge and Response in CENTAF's Duel with the Republican Guard

William F. Andrews

Colonel Andrews concentrates on tactical innovation during war. He examines the extent to which USAF doctrine prepared the US Central Command Air Forces (CENTAF) for its mission against the Republican Guard Forces Command (RGFC). He describes how CENTAF adjusted air operations against Iraq's RGFC in the 1990–91 invasion of Kuwait. CENTAF instituted six significant tactical innovations in one week that required its aviators to create

new tactics in the midst of combat operations. Colonel Andrews evaluates those innovations because they enabled CENTAF to satisfy theater objectives. He recommends that the Air Force identify means to measure air operations against land forces during peacetime because the press of war does not provide time for reflection and analysis.

1998. 144 pages. Public release.

P-2

\$9.00

Once in a Blue Moon: Airmen in Theater Command—Lauris Norstad, Albrecht Kesselring, and Their Relevance to the Twenty-First Century Air Force

Howard D. Belote

Colonel Belote concentrates on the question: What are the qualities necessary for airmen to perform effectively as war-fighting commanders in chief (CINC)? He identifies those necessary qualities of knowledge, insight, and skill through three methods. He reviews theoretical and historical literature on command. He uses the careers of two early theater CINCs—Generals Dwight D. Eisenhower and Jacob L. Devers—to establish a baseline for analysis. Colonel Belote offers two detailed biographical case studies on Gen Lauris Norstad and Field Marshal Albrecht Kesselring. He complements his historical inquiry with findings based on interviews with senior Department of Defense officials coupled to an analysis of the recent literature on joint command. Colonel Belote proposes a creation of a new and intentionally broad-gauged “joint warfighter” career track.

2000. 117 pages. Public release.

P-12

ISBN 1-58566-082-5

\$8.50

Airpower and the Cult of the Offensive

John R. Carter

Major Carter explores three case studies that have important similarities: the doctrine of Great Britain's Royal Air Force from 1918 to 1938, the Israeli Air Force's strategy from 1967 to 1973, and the United States Air Force's strategy from 1953 to 1965. He begins by establishing the theoretical background necessary for case study analysis. He dissects the relationship between offense and defense to discover that airpower defense enjoys neither an advantage of position nor of time. He examines the nature of offense and defense as they apply to airpower and offers reasons military organizations may prefer offensive doctrines. Major Carter identifies the elements and implications of the cult of the offensive.

1998. 125 pages. Public release.

P-3

\$9.00

Shooting Down a "Star": Program 437, the US Nuclear ASAT System and Present-Day Copycat Killers

Clayton K. S. Chun

Colonel Chun undertakes a case study of an experimental US antisatellite defense fielded by the Air Force in the 1960s as a departure for assessing the need for an antisatellite (ASAT) system today. The author argues that the US Air Force was able to develop a relatively effective system based on rudimentary technology. Using aging booster rockets (the Thor intercontinental ballistic missile) and existing tracking and targeting radar systems, the Air Force was able to intercept satellites. Colonel Chun argues that extrapolating from this historical example several states, particularly North Korea, Iran, India, and the Peoples Republic of China, could use widely available improved missiles and radar systems to develop ASAT weapons that would make critical US and allied space systems (military and commercial) vulnerable to attack, thus seriously undermining our offensive and defensive capabilities and perhaps wreak havoc on our economic system.

2000. 98 pages. Public release.

P-8

ISBN 1-58566-071-X

\$7.00

Uninhabited Combat Aerial Vehicles: Airpower by the People, For the People, But Not with the People

Richard M. Clark

Lt Col Clark chronologically traces the evolution of uninhabited combat aerial vehicles (UCAV) beginning two centuries before the birth of Christ and ending with the USAF abandonment of unmanned aerial vehicles (UAV) and UCAVs in the late 1970s. He provides some background information and examines the most current USAF involvement with UCAVs. Lt Col Clark discusses the obstacles that prevented unmanned aviation programs of the past from becoming operationally significant. He extracted evidence from current periodicals, from interviews with UAV and UCAV experts, and from other supporting documentation to determine what significant obstacles UCAVs may face in achieving operational significance in the Air Force. Lt Col Clark provides recommendations for overcoming the obstacles and managing the risks and uncertainties involved with UCAVs.

2000. 100 pages. Public release.

P-13

ISBN 1-58566-083-3

\$9.50

Rolling Thunder 1965: Anatomy of a Failure

Dennis M. Drew

A study of the interplay of policy and doctrine during the conduct of a major military campaign.

1986. 66 pages. Public release.

P-1

\$7.50



Turning the Vertical Flank: Airpower as a Maneuver Force in the Theater Campaign

Robert P. Givens

Colonel Givens examines three battles—1973 Yom Kippur, 1972 Easter offensive, and 1944 Normandy campaign—to test the validity of airpower operating as a maneuver force. He avoids wringing the concept through to the Persian Gulf War because of the heated feelings that arose during the analysis of that path-breaking

campaign some 12 years ago. What is unique and instructive about this study is its examination of historical warfare to illustrate current maneuver force concepts. Through the experiences of Kosovo and Afghanistan, the Air Force advocates with greater urgency that airpower can operate as a major force and is not endemically oriented to a supporting role. The contention is that exercising airpower in this role will enhance the future campaigns of the American military might. Colonel Givens concludes that, at the very least, the principle of economy of force demands airpower be seen as a viable maneuver force. He shows that in the conduct of warfare, we missed lessons in the past that we need to apply today.

2002. 106 pages. Public release.

P-24 ISBN 1-58566-108-2 \$9.00
ISSN 1537-3371



The Politics of Coercion: Toward a Theory of Coercive Airpower for Post- Cold War Conflict

Ellwood P. "Skip" Hinman IV

In *The Politics of Coercion*, Lt Col Hinman examines what coercion theory suggests about the use of airpower in the early twenty-first century. Specifically, he seeks to determine whether any of the existing theories of coercion can stand alone as a coherent, substantive, and codified approach to airpower employment. Framing his analysis on three key attributes of conflict in the post-Cold War era—limited, nonprotracted war; political restraint; and the importance of a better state of peace—Hinman examines the contemporary applicability of the four major theories of coercive airpower: punishment, risk, decapitation, and denial. Finding limitations in these theories, he proposes a three-phase "hybrid approach" to coercion that more adequately meets the needs of post-Cold War conflict.

2002. 88 pages. Public release.

P-25 ISBN 1-58566-109-0 \$7.50
ISSN 1537-3371

Toward an Air and Space Force: Naval Aviation and the Implication for Space Power

Mark P. Jelonek

The Air Force and Air Force Space Command need an official implementation plan to integrate space into air operations or they might founder in this third attempt to transition to an air and space force. The historical precedent established during the integration of aviation into the US Navy from 1921 to 1941 suggests the policy areas essential to successful integration. The Air Force has initiated several excellent programs to increase the knowledge and understanding of space operations in the flying community by incorporating space capabilities and products into air operations, professional military community by incorporating space capabilities and products into air operations, professional military education, and field exercises. Including space power in war games is also promoting understanding and creating an environment for innovation. The Air Force is on the verge of a bitter dispute between combat aircraft; intelligence, surveillance, and reconnaissance aircraft; unmanned aerial vehicles; and space systems. From this debate, the Air Force must establish priorities. While space operations officers have earned the highest ranks in the Air Force, they are underrepresented in the command positions. Providing opportunities for space operators to experience air operations will cultivate aerospace officers to employ the aerospace force. The Air Force can benefit from this historical analogy by recognizing that integration is more than the acquisition of weapons and combat capabilities. Integration relies on a powerful human component that will ultimately determine the success or failure of the endeavor.

1999. 94 pages. Public release.

P-11 ISBN 1-58566-072-8 \$9.00

Synchronizing Airpower and Firepower in the Deep Battle

R. Kent Laughbaum

Major Laughbaum argues that current joint doctrine does not provide sufficient and acceptable guidance for synchronizing Air Force and Army deep operations. He analyzes service and joint doctrine produced since Operation Desert Storm and examines the evolution of the fire support coordination line (FSL). He traces the development of the

Army's AirLand Battle doctrine and historical Air Force perspectives on the deep battle. His investigation of the deep battle during the Persian Gulf War emphasizes targeting and the application of the FSCL. Major Laughbaum provides five recommendations to change joint doctrine so that our services can work together effectively.

1999. 92 pages. Public release.

P-6

\$9.00



Thinking Effects: Effects-Based Methodology for Joint Operations

Edward C. Mann III, Gary Endersby, and Thomas R. Searle

The authors propose that military actions should be employed through effects-based operations (EBO). The US military is undergoing a transformation to be prepared for operations across the spectrum of engagement. These authors also propose that part of the transformation should deal with how the military thinks and operates. Mann, Endersby, and Searle have developed an extended explanation of EBO methodology earlier defined in the May 2002 Air Combat Command white paper titled "Effects-Based Operations." They have attempted to answer the challenge by the white paper to help establish procedures in the EBO methodology, to further codify the understanding of an EBO way of thinking. Submitting that this methodology is extremely promising, they recognize two major areas of challenge. First, is modifying both service and joint doctrine to fully articulate what can be accomplished with EBO. Second, there are major issues in the area of command and control (C²). Effective C² for EBO depends not only on how intelligence analysis and combat assessment are performed but how they integrated into the planning process. The authors conclude that the EBO methodology is actually a refinement or evolution of the objectives-based planning currently incorporated in US military doctrine.

2002. 118 pages. Public release.

P-27

**ISBN 1-58566-112-0
ISSN 1537-3371**

\$10.00

The Long Search for a Surgical Strike: Precision Munitions and the Revolution in Military Affairs

David R. Mets

What is a revolution in military affairs? What did the classical airpower theorists think? How did the revolution succeed in combat up to 1975? These are some intriguing questions Dr. Mets examines in *The Long Search for a Surgical Strike: Precision Munitions and the Revolution in Military Affairs*. This book is based on research conducted for a presentation at the Society of Military History, Calgary, Canada, May 2001.

2001. 96 pages. Public release.

P-20

**ISBN 1-58566-096-5
ISSN 1537-3371**

\$8.00

XIX Tactical Air Command and ULTRA: Patton's Force Enhancers in 1944 Campaign in France

Bradford J. "BJ" Shwedo

During this campaign, Patton devised unique ways to exploit the reciprocal and force-enhancing capabilities of airpower, ground scheme of maneuver, and ULTRA, code name for high-grade signals intelligence derived from German secret radio communication. Major Shwedo traces Patton's higher tactical and operational decisions from the hedgerows of Normandy in early August 1944 to the banks of the Moselle River, just 50 miles from the German border. The author contends that both the Air Force and the Army should learn the proper lessons from this campaign concerning how best to integrate intelligence, ground maneuver, and airpower. Major Shwedo recommends that these same tools could be usefully combined in the technologically enhanced era of the twenty-first century.

2001. 158 pages. Public release.

P-17

ISBN 1-58566-089-2

\$13.00

Does the United States Need Space-Based Weapons?

William L. Spacy II

Major Spacy examines the kinds of weapons that have been proposed for use in space. He compares their capabilities with those of their surface-based counterparts. He addresses two questions: What do space-based weapons have to offer that other forms of military power lack? What are space-based weapons likely to cost both in terms of dollars and in lost opportunities for pursuing other systems? Major Spacy evaluates the theoretical capabilities of orbital weapons and compares them to weapons already in existence and concepts proposed for development. His objective is to provide insight into where future investments should be made if the United States is to protect its increasingly important space-based assets and retain its position as a global leader able to project military power wherever necessary.

1999. 130 pages. Public release.

P-10 ISBN 1-58566-070-1 \$9.00

The Art of Wing Leadership and Aircrew Morale in Combat

John J. Zentner

Colonel Zentner addresses the role that the Air Force wing commander plays in affecting the level of aircrew morale during combat. He defines aircrew morale and establishes a framework within which aircrew morale can be assessed in three historical case studies of air combat. Colonel Zentner answers this question: Is it possible to identify those characteristics of leadership that are able to sustain aircrew morale in the face of significant losses? He concludes that aircrew control over development of combat tactics was the most important element affecting morale. Colonel Zentner recommends that the USAF take steps to modify doctrine and the professional military education curriculum to relate these findings to the combat air forces.

2001. 124 pages. Public release.

**P-18 ISBN 1-58566-090-6 \$10.00
ISSN 1537-3371**



Cover, *Aerospace Power Journal*, Spanish edition, Air University Press, Summer 2002.



Illustration, *Airpower Journal*, Air University Press, Winter 1996.

This is an Air University Press series of substantive essays considered too short for publication as monographs but too lengthy to be journal articles. The series is named for Gen Muir S. Fairchild, first commander of Air University and widely regarded as its conceptual father. Papers in the current series are available electronically at the AU Press Web site <http://aupress.maxwell.af.mil> and the Air University Research Web site <http://research.maxwell.af.mil>.

The Vital Link: The Tanker's Role in Winning America's Wars

David M. Cohen

This paper focuses on the unique and vital capabilities of the US Air Force's KC-135 tanker fleet. It analyzes historic and current tanker usage, tanker operational employment, and the capability of today's tanker fleet, with emphasis on force structure and force management. In light of decreasing budget, aging airframes, increased downtime for maintenance, and an explosion in the operations tempo, this paper proposes a four-pronged methodology addressing tanker vision, organization, training, and employment, as the correction needed to get the KC-135 weapon system back on centerline. This will allow the tanker to effectively aid the Air Force in successfully deterring conflict and if needed, quickly win the nation's future wars.

2001. 67 pages. Public release.

P-16 ISBN 1-58566-088-4 \$6.50

Endgame in the Pacific: Complexity, Strategy, and the B-29

G. Scott Gorman

Maj Gorman examines the problems encountered by XX and XXI Bomber Commands in employing the B-29 against Japan, initially from India and China, later from the Marianas. The technologically advanced bomber was expected to be the technological solution to attacking Japan across long distances. XX and XXI commands, however, found that employing the big bomber was not as simple as planners had hoped. Their problems included technological malfunctions, doctrinal shortcomings, and unintended consequences.

2000. 80 pages. Public release.

P-7 ISBN 1-58566-075-2 \$5.50

Air Mobility: The Key to the United States National Security Strategy

Richard J. Hazdra

Major Hazdra examines the current force structure of Air Mobility Command (AMC) based on a model for two major theater wars. AMC's force structure is crucial for the United States to implement its national security strategy. Major Hazdra's study centers on the question: Can a force structure based on the possibility of fighting two major theater wars satisfy the requirements for steady-state operations? He examines three corollary issues: air mobility as a form of airpower that enables the military instrument of power in two basic ways, requirements placed on mobility air forces, and the structure of mobility air forces and the effectiveness of that structure. Major Hazdra recommends the Air Force should allocate resources to create a force structure for AMC that can achieve national objectives.

2001. 138 pages. Public release.

**P-19 ISBN 1-58566-095-7 \$11.00
ISSN 1528-2325**



War from above the Clouds: B-52 Operations during the Second Indochina War and the Effects of the Air War on Theory and Doctrine

William P. Head

Dr. Head examines B-52 operations in Vietnam and how the air war affected airpower doctrine and theory. He examines the evolution of this awesome-manned strategic weapon in Vietnam to see how the structure of the B-52's originally intended mission altered—if at all—the theories of airpower first put forward by Giulio Douhet and William "Billy" Mitchell. Dr. Head analyzes how this same operational alteration affected official USAF doctrine first formulated by Army Air Corps and Army Air

Forces leaders before and during World War II, later modified in the 1950s after the USAF became a separate service. Dr. Head contends that the lack of a definitive test for the theory that airpower decisively affects the outcome of war continued during the Vietnam or Second Indochina War.

2002. 146 pages. Public release.

P-23 ISBN 1-58566-107-4 \$13.00
ISSN 1528-2325



Expeditionary Air Operations in Africa: Challenges and Solutions

Karen U. Kwiatkowski

Colonel Kwiatkowski details air operations challenges in Africa, and she discusses how the USAF currently meets or avoids these challenges. She contends that Africa is like the "western frontier" of America's history—undeveloped, brimming with opportunity as well as danger, and that it is a place where standard assumptions often do not apply. A portion of Colonel Kwiatkowski's study is dedicated to illustrating how USAF air transport is really done in Africa on a daily basis. She recommends ways to improve our ability to conduct expeditionary air operations on the continent.

2001. 145 pages. Public release.

P-21 ISBN 1-58566-100-7 \$13.00
ISSN 1528-2325

Military Resistance to Humanitarian War in Kosovo and Beyond: An Ideological Explanation

Kenneth R. Rizer

Major Rizer explains why the Pentagon opposed war in Kosovo and why it will likely oppose future such humanitarian wars. He further explains how the joint chief's resistance to intervening militarily in Kosovo was based on the US military's worldview. This paper shows that the US military holds an institutional philosophy of conservative realism. Major Rizer concludes that this military philosophy is unlikely to change in the short term, that it will continue to strain relations with liberal administrations, and that it ultimately helps prevent cavalier uses of American military power.

mately helps prevent cavalier uses of American military power.

2000. 64 pages. Public release.

P-15 ISBN 1-58566-086-8 \$5.50



Ten Propositions Regarding Spacepower

M. V. Smith

As political and military leaders ponder the future of space operations, the time has come to frame propositions regarding space power. Specifically, the author seeks to answer the question, "What is the nature of space power?" Two points come immediately to the forefront of this work. First, space power is different from airpower even though both share the vertical dimension of warfare. Second, space operations have matured to a point wherein valid and unique propositions regarding space power are identifiable. The objective of this work is to stimulate discussions and encourage those who do not yet understand or appreciate the nature of space power in modern warfare.

2002. 156 pages. Public release.

P-28 ISBN 1-58566-113-9 Price
ISSN 1528-2325 unavailable



Employee Warriors and the Future of the American Fighting Force

Hugh S. Vest

The rapid expansion of social democracy and technology has drawn the military closer to civilian society. Major Vest takes a practical and conceptual look at some of the deep cultural patterns of change within today's military society and he highlights the need to continue the dialogue on shaping the military culture of tomorrow's cyber warriors. He questions whether the modern occupational military can consistently fulfill the demands of soldiers in the twenty-first century, or whether it is adversely affecting the development of the heroic leaders and followers we need for future military endeavors.

2002. 82 pages. Public release.

P-22 ISBN 1-58566-105-8 \$7.50
ISSN 1528-2325



Whither Space Power? Forging a Strategy for the New Century

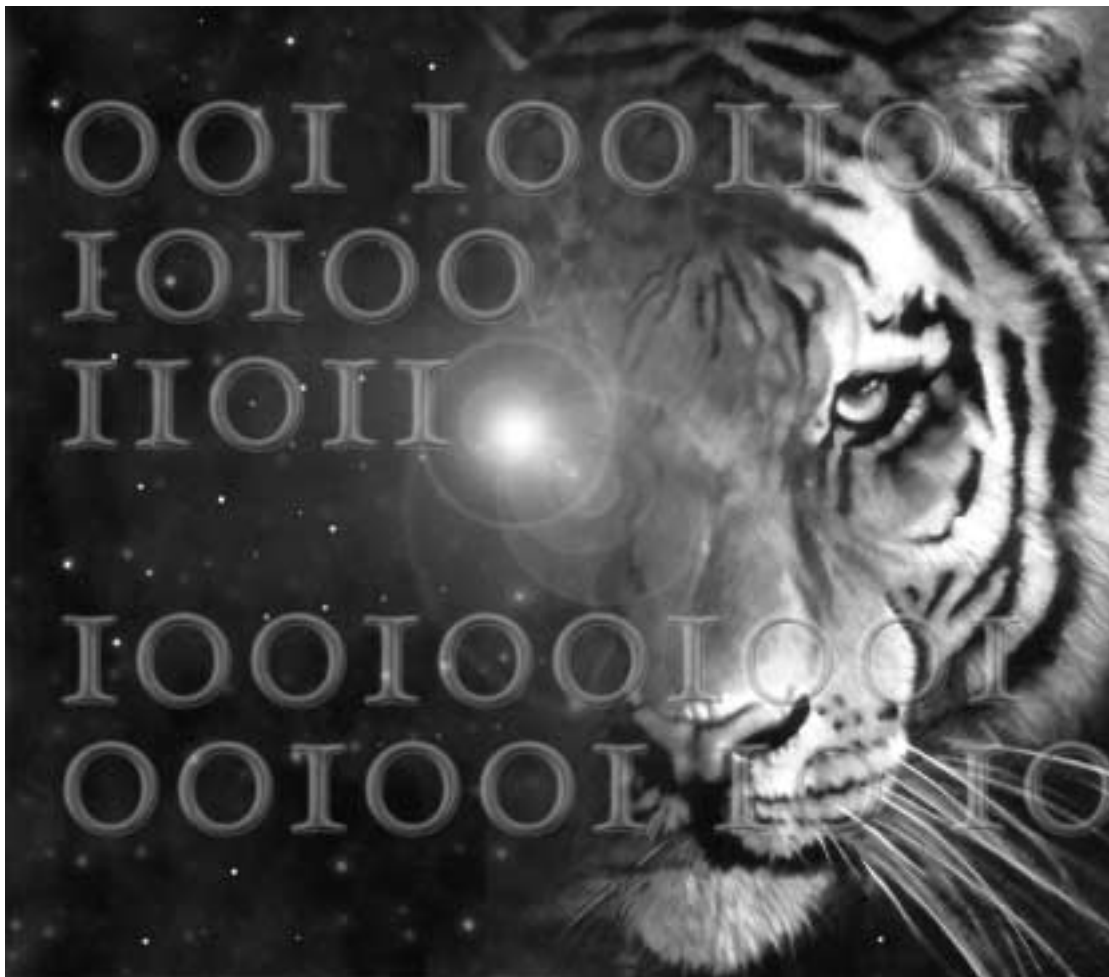
Simon P. Worden and John E. Shaw

The influence of space power pervades almost every sphere and level of human existence, from politics to military affairs to commercial activities to cultural mind-sets. Yet there is little to be found today in the way of coherent space power doctrine and strategy, particularly in national security circles. To what extent do our national interests rely on space? How shall we defend our interests in space and how shall we deny our adversaries the benefits of space power in time of conflict? How can we control and exploit the space envi-

ronment? How can we effectively wield space power against the full spectrum of threats—from the lone terrorist to global peer competitors? What should be our long-range strategy and objectives if our goal is to achieve and maintain long-term space superiority? The purpose of this paper is two fold: first, to illuminate the historical and ever-increasing importance of space in modern society; and second, to prescribe, in view of this importance, the foundations of a strategy for achieving lasting space superiority and ensuring national and world security.

2002. 166 pages. Public release.

P-26 ISBN 1-58566-111-2 \$14.00
ISSN 1528-2325



Illustration, *Aerospace Power Journal*, Spanish edition, Air University Press, Summer 2001.



Cover, *American Airpower Comes of Age*, General Henry H. "Hap" Arnold's World War II Diaries, Air University Press, 2002.

RESEARCH REPORTS

These reports are special research studies on issues and problems of particular interest to Air Force commands and agencies. The authors were assigned on a temporary basis from MAJCOMs to CADRE's Airpower Research Institute. This program ended in 1994.

Making Operational Support Airlift Ready for War

David D. Dyche

Colonel Dyche defines operational support airlift's (OSA) wartime roles and missions. He traces OSA's roots from World War I up to consolidation under the Military Airlift Command in 1975. He discusses organizational changes over the past 20 years. How should OSA be organized, trained, and equipped in peacetime to meet its wartime mission? Answering that question is central to Colonel Dyche's study. He recommends reorganization, better training, new mentality, modern equipment, and a new name—combat operations support airlift (COSA). Colonel Dyche argues the need for Air Force OSA to change soon. If the proposed changes are made in peacetime today, COSA will be ready for war.

1995. 255 pages. Public release.

R-11

\$20.00

Total Force Policy and the FIGHTER FORCE

Daniel L. Gladman

Colonel Gladman reviews the evolution of the Department of Defense's total force concept and the historical role that reserve forces have had in meeting national security requirements. He discusses legislation and political influences that affect the debate over the role of active, reserve, and guard forces in the total fighter mix. Colonel Gladman concludes that the limits of airpower in the twenty-first century may be defined by our ability to find innovative solutions to age-old problems.

1995. 66 pages. Public release.

R-1

\$5.50

Command and Control Warfare: Putting Another Tool in the War-Fighter's Data Base

Norman B. Hutcherson

Colonel Hutcherson argues that the US armed forces must develop a strategic mix for decision

makers at each level of war that provides the information they need, at the time and place they want it, and in a format they can use. He describes the background and development of command and control warfare (C²W) and points out its importance on and off the battlefield. Colonel Hutcherson looks at operations security, electronic warfare, physical destruction, psychological operations, and military deception and warns the war fighter against relying solely on the present C²W construct of only these five pillars. He recommends that as new techniques or capabilities are developed and perfected, they should also be added to keep command and control warfare a viable warrior's tool.

1994. 82 pages. Public release.

R-28

\$7.00

Grand Strategy for Information Age National Security: Information Assurance for the Twenty-first Century

Kevin J. Kennedy, Bruce M. Lawlor,
and Arne J. Nelson

The authors define *grand strategy* as the art and science of developing and using the political and economic powers of a nation, together with its armed forces, during peace and war, to further national interests, priorities, and policies. Military strategy is a subset of grand strategy. The authors believe that a reexamination of grand strategy is essential in the Information Age because future enemies are likely to avoid attacking US defense forces directly. Instead they will focus on undermining US national will to fight by exploiting its reliance on information systems, present to technological vulnerability and democratic methods of governing. The authors offer specific recommendations for coping with Information Age threats to our national security.

1997. 100 pages. Public release.

R-30

\$8.00



**Teaching Excellence:
Methodologies to Assess
Teaching Effectiveness**

Steven G. Webb

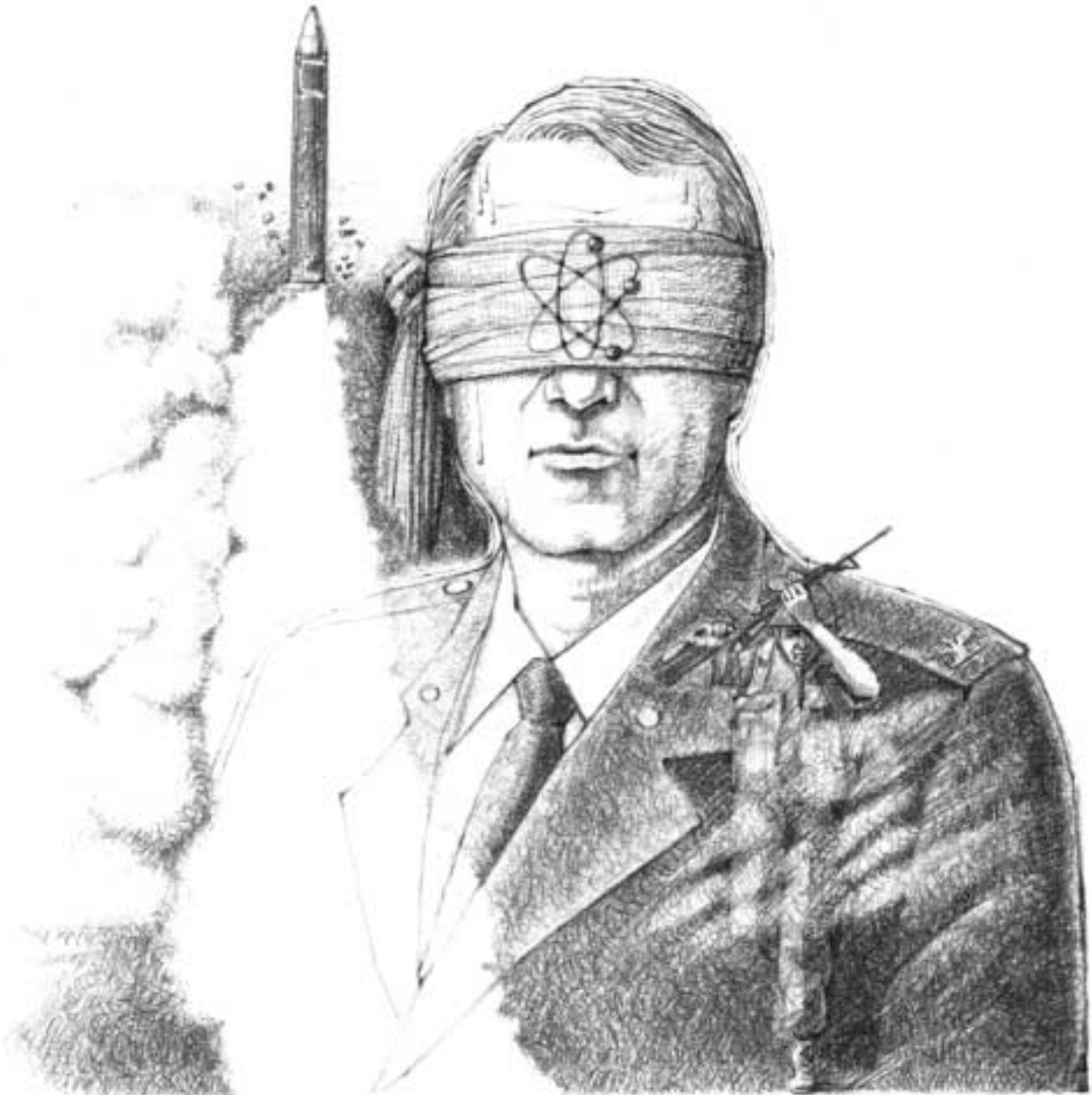
Major Webb examines the issues associated with assessing the networked classroom system at the US Air Force Academy. He reviews and compares teaching technologies and

styles. Major Webb proposes guidelines and outlines principles to follow in developing a method to evaluate the effectiveness of innovative education technologies at the Air Force Academy. He uses the undergraduate engineering course as a case study.

1994. 172 pages. Public release.

R-9

\$15.00



Illustration, *Airpower Journal*, Air University Press, Fall 1997.

These student theses are selected for publication from among those submitted to the faculty of the School of Advanced Air and Space Studies (SAASS), Maxwell AFB, Alabama, as one of the requirements for completion of a masters degree in air and space power art and science. Both published and unpublished SAASS theses are available electronically at http://aupress.af.mil/SAAS_Theses.htm.



Effects-Based Targeting: Another Empty Promise?

T. W. Beagle Jr.

Major Beagle sets out to determine how effectively the USAF has incorporated the concept of effects-based operations into its procedures for targeting and combat assessment. He analyzes that concept and a variety of taxonomies with which to consider. Major Beagle reviews the ideas of nine theorists, which reveal that effects-related theory has existed at least as long as airpower theory. He examines how well effects-based operations were planned and executed in four case studies—Operations Pointblank, Linebacker II, Desert Storm, and Allied Force—that occurred between the early 1940s and 2000. Major Beagle concludes by stating that the USAF should “do some hard thinking” about past performance and specific future woes.

2001. 112 pages. Public release.

T-27

\$15.00

Bombs over Bosnia: The Role of Airpower in Bosnia-Herzegovina

Michael O. Beale

Major Beale examines the role operations Deny Flight and Deliberate Force played in achieving a peaceful settlement to ethnic conflict in Bosnia-Herzegovina in the early 1990s. To help the reader understand the role Deny Flight and Deliberate Force played in getting a peace agreement signed, the author explains the political and historical context of the war in Bosnia-Herzegovina. While Deny Flight was generally ineffective in its mission, Deliberate Force was, in the words of US Secretary of Defense William Perry, “the absolutely crucial step in bringing the warring parties to the negotiating table at Dayton, leading to the peace agreement.”

1997. 71 pages. Public release.

T-13

\$6.00



An Enduring Framework for Assessing the Contributions of Force Structure to a Coercive Strategy

Eric A. Beene

DOD is still struggling to define itself in the post-cold war age—more than a decade after the new period began. With a strategy and force structure review occurring on average every two years, the military has still not been able to generate a consistent basis on which to justify its force structure or its strategy. Colonel Beene uses a decision analysis framework as a foundation for creating such a basis. Instead of depending on leadership for guidance, which changes with destabilizing regularity, he relies on the theories of coercion that began in the cold war era. Colonel Beene contends that these theories have particular value today, especially in light of the many innovations the nation has undertaken in the past decade. Modified and translated for modern conventional warfare, these theories form the basis for a framework of enduring requirements for any military force that undertakes a coercive strategy. Colonel Beene develops this framework to the operational level of analysis, and it is applied to two developmental air platforms, the Global Hawk Endurance Unmanned Aerial Vehicle and the Unmanned Combat Air Vehicle. He describes how this analysis tool compares to other tools of strategy and force structure assessment. Colonel Beene recommends the framework's continued use and development.

2002. 90 pages. Public release.

T-23

\$13.00

Bedding Down with C-O-T-S: Leveraging Commercial Industry to Solve the Strategic Airlift

Christopher J. Bence

Major Bence examines the feasibility for USAF to obtain and field a commercial off-the-shelf (COTS) cargo aircraft in order to meet the current and future airlift requirements of the United States. He discusses the current

capacity, the three types of cargo, and the total force structure of the USAF. Major Bence offers five alternatives, including COTS—each embraces benefits and drawbacks—to increase airlift capacity.

2000. 80 pages. Public release.

T-7

\$9.50

Transport Bombers: A Conceptual Shift in Precision- Guided Munitions Delivery

Bryan J. Benson

In this study Major Benson addresses the shortfall in bomber and transport capabilities necessary to execute the two major regional contingencies called for in the president's national security strategy. He examines in depth the development of transport bombers as one option in the search for a solution to this shortfall. Major Benson focuses on operational utility, technological assessment, and budgetary and operational considerations involved with the transport-bomber option.

1996. 56 pages. Public release.

T-4

\$6.00



Lifeline from the Sky: The Doctrinal Implications of Supplying an Enclave from the Air

John Steven Brunhaver

Major Brunhaver seeks to answer the question, what are the doctrinal imperatives of providing effective airlift support to enclaves? He states that doctrinal imperatives are those necessary and sufficient propositions that describe the optimal way to employ airlift forces in support of an enclave. This paper attempts to determine the best way to conduct airlift operations to support enclaves. Major Brunhaver's primary conclusion is that four fundamental factors influence airlift operations: requirement to capability ratio, threat, support infrastructure, and weather.

2002. 66 pages. Public release.

T-2

\$9.00

Aerospace Doctrine Matures through a Storm: An Analysis of the New Air Force Manual 1-1

Kurt A. Cichowski

Colonel Cichowski analyzes the March 1992 Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*. He traces the heritage of aerospace power and examines the history and theory behind the evolution of Air Force doctrine. He investigates material relating to the history of aerospace doctrine and aerospace performance in Desert Storm. Colonel Cichowski concludes that while it is weak on some points, the new version provides a sound doctrinal basis for the development of joint aerospace doctrine.

1993. 68 pages. Public release.

T-10

\$5.50

Keeping the Peace: Regional Organizations and Peacekeeping

John S. Clark Jr.

Major Clark examines two peacekeeping operations: the Organization of American States (OAS) intervention in the Dominican Republic in 1965, including its involvement in the Central American peace process in the late 1980s and the Economic Community of West African States intervention in Liberia in 1990 to the present. He states that the OAS participation in the Central American peace process, in conjunction with the United Nations (UN), demonstrates what can be accomplished when the conditions for peace are facilitated by peacekeepers. Major Clark indicates that perhaps the single-minded focus on the UN as the vehicle for peaceful resolution of conflict may have caused the international community to overlook the potential of regional organizations. He submits that regionals are not the right vehicle for peacekeeping in every situation. But Major Clark recommends that Department of Defense and other US agencies should support and encourage regional organizations to bear more of the peacekeeping burden, either independently or as a partner with the UN.

1997. 68 pages. Public release.

T-35

\$8.00



De-Ranged: Global Power and Air Mobility for the New Millennium

Robert A. Colella

Colonel Colella examines global power from its origins as Strategic Air Command built a fleet of bombers and tankers to meet the needs of the global nuclear-deterrent policy of the Cold War. He traces this evolution through the studies and commissions of the 1990s established to determine the force structure for the twenty-first century. Next, he establishes assumptions made to develop a force focused on expeditionary short-range airpower to project global power, and then Colonel Colella evaluates four case studies—Operation Nickel Grass, Vulcan Black Buck missions, Operation Eldorado Canyon, and Operation Desert Strike—in the application of airpower over long range. The studies are used to provide evidence to support and refute the assumptions made during the 1990s to model the USAF force structure around short-range expeditionary forces with the intention of forward deploying them in a crisis. Colonel Colella offers recommendations for methods to equip those future forces with a sturdy in-flight refueling force capable of supporting long-range missions free from the entanglements of foreign support and reliance on forward basing.

2002. 102 pages. Public release.

T-17

\$14.00

A Matter of Trust: Close Air Support Apportionment and Allocation for Operational Level Effects

Peter A. Costello III

Major Costello reviews the history of close air support (CAS) since World War II to show how it has been apportioned and allocated in the past. He examines the current joint air operations process and two theories of the use of CAS at the operational level. He observes that the current system, rooted in its historical past, does not fully employ CAS to its optimum potential. However, his theory is that CAS should be used to isolate and demoralize the enemy. Major Costello recommends changes to the view of CAS and the process for its apportionment and allocation. Its application should be coordinated

beginning at the operational level and down to the tactical, not vice versa.

1997. 80 pages. Public release.

T-34

\$6.50

Information Warfare: An Air Force Policy for the Role of Public Affairs

Robin K. Crumm

This paper shows how the conduct of military operations in the Information Age demands new strategies, new tactics, and new ways of thinking. It raises moral and ethical issues regarding the relationship between the military, the media, and the American public; and it explores the relationship between Information Warfare (IW) and Public Affairs (PA). Three possible options emerge regarding the IW roles PA might adopt. Option One—a “Hands Off Policy”—seeks to avoid any association with IW and represents the current PA approach. Option Two upholds the primary of truth and acknowledges the active role PA must take in IW. Option Three suggests PA abandon its policy to tell the truth and actively engage in all IW activities.

2001. 58 pages. Public release.

T-37

\$7.50



Hale's Handful . . . Up from the Ashes: The Forging of the Seventh Air Force from the Ashes of Pearl Harbor to the Triumph of VJ-day

Peter S. H. Ellis

Major Ellis analyzes the evolution of Seventh Air Force's joint command and control relationships as well as the development of joint operational procedures and doctrine in the Central Pacific during World War II. In approaching this subject, he proceeds chronologically, outlining the major campaigns of the drive through the Central Pacific. Within the campaigns, Major Ellis addresses joint planning, preparation and support issues, bombing and strike challenges, and developments in close air support of the amphibious operations. He focuses especially on joint leadership interactions—was it all about personalities? He argues that despite Navy dominance of the Central Pacific, this theater represents the

only theater in which the Navy, the Army, the Army Air Corps, and the Marines all played major, vital roles in the combat that won the island-hopping campaign in World War II. Major Ellis shows how the challenges and lessons of the Seventh Air Force in World War II are clearly applicable to contemporary airmen.

2002. 94 pages. Public release.

T-18

\$13.00

John Boyd and John Warden: Air Power's Quest for Strategic Paralysis

David S. Fadok

Colonels John Boyd and John Warden have contributed to the evolution of airpower theory through their respective works on strategic paralysis. Boyd's thoughts on strategic paralysis are process-oriented and aim at psychological incapacitation. He speaks of folding an opponent back inside himself by operating inside his observation-orientation-decision-action loop. His theory of conflict is Clausewitzian, emphasizing the mental and moral spheres of conflict, and he considers it important to teach the genius of war. Major Fadok describes Warden's theory as form-oriented and aiming at physical paralysis. This theory is Jominian in the sense that it is important to teach warriors how to act—that is, to teach the principles of war. Major Fadok concludes that strategic paralysis theory has moved from an early emphasis on targeting war-supporting industry to a current emphasis on war-supporting command to a future emphasis on war-supporting information.

1995. 56 pages. Public release.

T-29

\$5.50



The Moral Domain of War: A View from the Cockpit

Walter Anthony Grady Jr.

Major Grady uses original research obtained from surveys completed by F-105 pilots that focus on the Vietnam War in an attempt to analytically determine the moral domain of war factors that enable a pilot to fly in combat. He states that the moral domain consists of the motivation forces originating from within a person's heart and soul and views motivation in war from the pilot's perspective. This emphasis shift gives insights that indicate a

fundamentally different set of motivation factors operating on the pilot than generally assumed from projecting ground-combatant motivation factors on airmen. Major Grady argues further that the combat motivation factors affecting pilot behavior in combat adhere to a pattern emanating from the moral domain of war. Major Grady believes this process will allow the United States to maintain vigilance over likely threats to our national interest, thus allowing us to keep our superior capabilities by continually analyzing the threat. With the long lead times for fielding new weapon systems and the complex task of developing new processes, he concludes that this important effort should help to minimize surprises and enhance cooperation between coalition forces.

2002. 96 pages. Public release.

T-1

\$13.00



Seeking Shadows in the Sky: The Strategy of Air Guerrilla Warfare

Patricia D. Hoffman

Major Hoffman analyzes the feasibility of guerrilla warfare as the basis for a strategy of airpower employment for a weak air force confronting an opponent with a stronger air force. She compares the ground combat environment of the traditional guerrilla with the airpower environment of the potential air guerrilla. Major Hoffman focuses on the weak force's air platforms because it appears that aircraft employment is the more difficult problem to solve. She concludes that air guerrilla warfare is a credible threat to a stronger opponent. Major Hoffman recommends that the United States reexamine its conflict intervention strategy and reinforce its peacetime engagement posture.

2001. 70 pages. Public release.

T-20

\$9.00

The Counterair Companion: A Short Guide to Air Superiority for Joint Force Commanders

James M. Holmes

Air Supremacy has provided our surface, sea, and air forces the freedom to operate without fear of significant enemy surveillance or inter-

ference. With air supremacy, nothing is impossible. Major Holmes analyzes service and joint counterair doctrine, examines the counterair strategy process, discusses counterair force options, describes current interservice issues and uses service visions of war to show why counterair forces will continue to play a critical role in American joint operations. Integrating services will require a common counterair doctrine, a timely modernization plan that stresses service capability and joint compatibility, and continuous joint training. The success of this integration process will also depend on how well joint force commanders understand and direct the counterair process.

1995. 76 pages. Public release.

T-32

\$7.00



**United States Air Force
Precision Engagement
against Mobile Targets:
Is Man In or Out?**

Keith J. Kosan

Major Kosan discusses the deficiency in the US Air Force's ability to precisely attack mobile targets at standoff ranges with minimal collateral damage as revealed by recent airpower operations. He addresses the technological as well as international, national, and military strategic environmental issues that may affect technology. Major Kosan focuses on USAF munition precision engagement capabilities; thus, he does not perform an in-depth analysis of aerial platform precision engagement capabilities. He focuses on only USAF's research, development, and acquisition strategy in regards to precision conventional strike capabilities against mobile targets. Major Kosan projects that future airpower operations will be executed in politically sensitive strategic environments and will require the ability to precisely destroy mobile targets that may have been strategically placed by an adversary in areas with a high risk of collateral damage.

2001. 90 pages. Public release.

T-45

\$12.00

**Sustained Coercive Air Presence
(SCAP): Provide Comfort, Deny
Flight, and the Future of Airpower
in Peace Enforcement**

George D. Kramlinger

Major Kramlinger examines the theoretical, historical, operational, and technological aspects of SCAP and illustrates how air operations over Iraq and Bosnia demonstrated the problems associated with a long-term air presence and suggest the need for doctrine that adapts combat airpower to the SCAP mission. He focuses on the determination of the mechanisms, strengths, and limitations of how combat airpower can persuade determined belligerents to stop fighting and then maintain a secure environment to facilitate the continuing diplomatic process.

2000. 78 pages. Public release.

T-26

\$8.50

**Expendable Remotely Piloted
Vehicles for Strategic Offensive
Airpower Roles**

Dennis Larm

Major Larm examines the feasibility of developing expendable remotely piloted vehicles (RPV) and explores future concepts of conventional US offensive airpower roles. He outlines the historical base of the larger category of unmanned aerial vehicles. Major Larm does not propose to take the pilot out of the cockpit, but he examines the concept of taking the cockpit out of the aircraft. By incorporating the added dimension of employing one-use vehicles to this concept, he attempts to reveal representative—though not all-encompassing—innovative airpower ideas. Major Larm's conclusion is that the use of expendable RPVs for strategic offensive airpower roles is a viable concept.

2001. 88 pages. Public release.

T-28

\$12.00



**The Transformation Trinity:
A Model for Strategic
Innovation and Its
Application to Space Power**

Bruce H. McClintock

Major McClintock develops a generalized model for United States military transformations in peacetime. He combines observations made by several historians about recurrent trends in military strategic innovation. He concludes that, after taking into account inevitable uncertainty, there are three identifiable factors that occur in most cases of military transformation. Major McClintock provides recommendations about how to apply the model in the future and possible approaches to the challenge of strategic innovation with regard to space power.

2002. 90 pages. Public release.

T-39

\$13.00

**Eliminating the Rhetoric: An
Evaluation of the Halt-Phase
Strategy**

Mark C. Nowland

Major Nowland identifies criteria that will provide objective analysis of a halt-phase strategy. He examines air combat in three operations: the Battle of Bismarck Sea, the 1973 Golan Heights battles of the Yom Kippur War, and the Iraqi Republican Guard escape from Basra. His study consists of three sections: assessment of prehostility preparation, examination of actual combat operations, and analysis of the results of the operation. Major Nowland concludes with three major lessons.

2000. 88 pages. Public release.

T-12

\$11.00



**Comparative Analysis of
Internal and External
Solutions to Provide Air
Combat Maneuvering
Instrumentation Functionality**

Michael T. Panarisi

Major Panarisi summarizes the development of current and proposed family of Air Combat Maneuvering Instrumentation (ACMI) systems—considered the gold standard of train-

ing mission enhancements—and presents the capabilities each system provides. He uses the Kadena Interim Training System as a suitable case study to compare requirements of current ACMI features to the capabilities available using internal components. He contends that internal systems can be installed long before the next generation system will be operational. Thus, Major Panarisi proposes alternatives that offer the potential to save millions of dollars in operating costs and which allow ACMI training on every mission independent of ground-based equipment and external stores.

2001. 92 pages. Public release.

T-30

\$12.00

**Concepts of Operations for a
Reusable Launch Vehicle**

Michael A. Rampino

Major Rampino analyzes the potential value of reusable launch vehicles (RLV) to the US military, especially the Air Force. He discusses the factors that affect the development of such vehicles and viable concepts of operations. Major Rampino recommends that it is not too early for military air planners to think deeply about the implications of operational RLVs for war-fighting strategy, force structure planning, training, and doctrine.

1997. 62 pages. Public release.

T-24

\$5.50

**Dead on Arrival? The Development
of the Aerospace Concept,
1944–58**

Stephen M. Rothstein

Major Rothstein chronologically traces the historical development of the aerospace concept, from its initial inception in 1944 as it was embodied in the far-reaching vision of Gen Henry H. "Hap" Arnold, until its public appearance in 1958. He uncovers reasons why airmen came to see their primary area of responsibility differently than the rest of the nation and why their aerospace concept failed to win bureaucratic support. By tracing the aerospace concept's technological and intellectual development against a contextual backdrop of geopolitics, national security strategy, national space policy, interservice competition, and inter-

nal tensions within the Air Force, Major Rothstein offers historical lessons learned for today's planners seeking to move the Air Force toward an aerospace force.

2000. 102 pages. Public release.

T-25

\$13.00

A Framework for Military Decision Making under Risks

James V. Schultz

Colonel Schultz assesses the application of prospect theory to military decision making. He compares and contrasts prospect theory with the expected utility theory and Allison's rational actor, organizational process, and political decision-making models. The author uses Eisenhower's decision to execute Operation Market Garden as a case study to apply the risk propensity framework. Colonel Schultz warns that prospect theory does not predict the choice decision makers will make but should reveal their tendencies to follow risk seeking or risk adverse courses of action.

1997. 53 pages. Public release.

T-16

\$7.50

Vital Interests, Virtual Threats: Reconciling International Law with Information Warfare and United States Security

Karl J. Shawhan

Major Shawhan examines the history of technology and sovereignty and the advantages and disadvantages of the International Regime for Information Security (IRIS) model, which mirrors the sanctuary of a weapons-free outer space without limiting weapons proliferation. He discusses how the use of computer networks threatens the traditional understanding of national sovereignty. He examines how far advances in technology have outpaced the intent of the Charter of the United Nations regarding aggression and armed force. Major Shawhan proposes reasonable policy steps necessary to support national security in an information age and recommends the use of the IRIS model for a future international convention on information warfare.

2000. 74 pages. Public release.

T-14

\$9.50

Bombing to Surrender: The Contribution of Airpower to the Collapse of Italy, 1943

Philip A. Smith

Major Smith examines the contribution of airpower to the 1943 collapse of Italy. His study is largely about competing airpower strategies during World War II. He presents his own view of this 50-year-old debate. Major Smith does not offer another absolute ruling, nor does he represent a bias toward one form of employing airpower over another, but his study attempts to document an important exception to the most current panacea target. He cites several broad works—Robert A. Pape's *Bombing to Win: Airpower and Coercion in War*, the *United States Strategic Bombing Survey Reports*, Ernest R. May's "Lessons" of the Past: *The Use and Misuse of History in American Foreign Policy*, and Frederick William Deakin's *The Brutal Friendship: Mussolini, Hitler, and the Fall of Italian Fascism*—to identify examples where the psychological effects of airpower outweighed the physical damage caused by bombing.

1998. 88 pages. Public release.

T-51

\$10.00

Attacking the Theater Mobile Ballistic-Missile Threat

David E. Snodgrass

Major Snodgrass reviews the performance of US offensive and defensive systems against Iraq's Scuds during Operation Desert Storm in 1991 and examines current US efforts to defeat these potentially destabilizing weapons. The danger of third world countries employing theater ballistic missiles has increased. Reflecting the realities of the new world order, theater missile defense is the first priority, and national missile defense is the second priority. Major Snodgrass covers the pros and cons of competing concepts to accomplish missile threat. This paper addresses how best to accomplish attack operations against the mobile ballistic missiles before they are launched. Using five basic criteria in his evaluation, he concludes that a multilayered approach, consisting of attack operations, active defense, passive defense, and a robust C'I network, forms the framework for the most effective mobile missile defense.

1993. 90 pages. Public release.

T-54

\$8.50



The Quick Response Air Force: Decisive Expeditionary Airpower for the Future?

G. Larry Thompson

Major Thompson examines the question: How should the US military structure its forces to provide the National Command Authorities an on-call, sustainable, and responsive airpower force worldwide? He provides an in-depth background; discusses the problem, its importance, related problems, and past attempts at solutions; and offers a framework to reorganize existing forces into a Quick Response Airpower Force (QRAF). Major Thompson gives recommendations for further study, but he contends that this QRAF concept involves a force structure that can help by replacing forward presence with a credible continental United States-based, quick response deterrent force that can be tailored to the unpredictable challenges of the future.

2001. 52 pages. Public release.

T-36

\$6.50

The Future of NATO's Tactical Air Doctrine

Linda E. Torrens

Major Torrens analyzes the impact that expansion and cooperation with the Partnership for Peace nations will have on NATO's tactical air doctrine. The end of the cold war diminishes the primacy of air superiority as a focus of NATO doctrine. To integrate former Warsaw Pact countries and military personnel, NATO will need to overcome the problems presented by nonstandard, outdated Soviet-made military hardware; ethnic, language, and cultural diversity of the former Warsaw Pact nations; and deeply ingrained, Soviet-based military philosophies. A second major challenge facing NATO is out-of-area operations. NATO will need to reshape its doctrine to meet these challenges.

1997. 47 pages. Public release.

T-21

\$7.00



Illustration, *Air and Space Power Journal*, Air University Press, Winter 2002.



Cover, *The Praetorian STARShip: The Untold Story of Combat Talon*, Jerry L. Thigpen, Air University Press, 2001.

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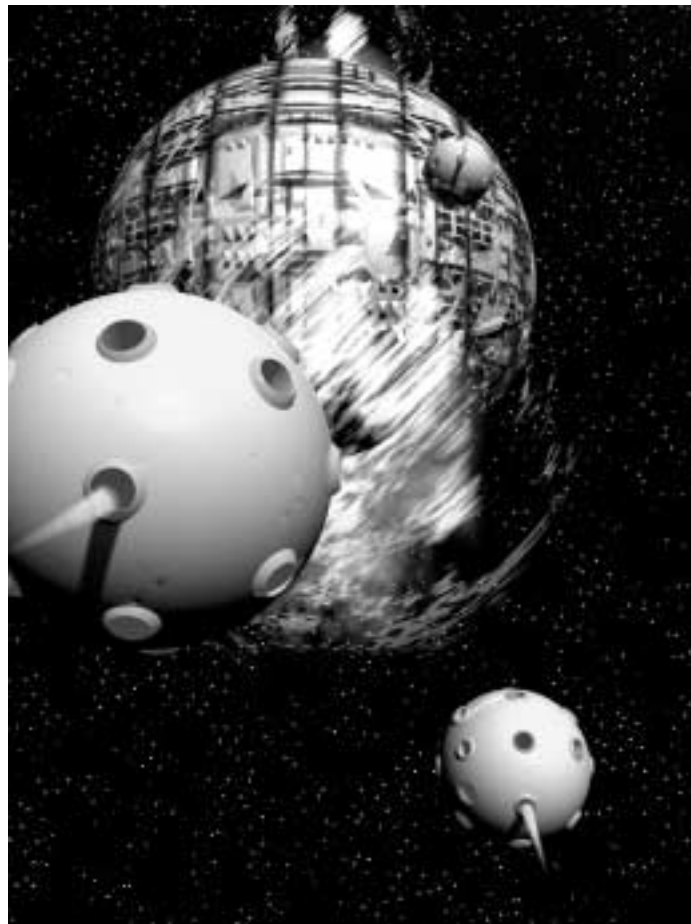
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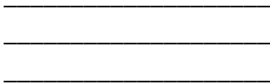
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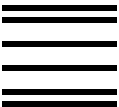
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